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CONSUMERS' RESEARCH

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Off the Editor's Chest

CONSUMERS, who last fall made it unmistakably clear that they wanted ample supplies of meat and were not in a mood to be told by government officials just how much they were to be permitted to have, will need to be just as forthright in indicating their wishes with respect to certain other commodities, if they wish to see a return to prewar days of abundance and convenient buying. Since commodities bought by every homemaker have become pawns in the shadowy chess game of international affairs, it is important for consumers to inform themselves about the various issues involved and communicate their views to their duly elected representatives in Congress as to whether they are or are not willing to do without certain commodities to further some particular foreign policy.

Take the question of sugar, for example. How many consumers know that the total amount of Cuban sugar that the United States *is permitted to buy* for home consumption is set by a 19-nation international food council, and not by our ability to pay for the amount U. S. consumers would like to use? It may be very plausibly reasoned that this country should not use its more advantageous financial position to outbid other countries which need sugar but which cannot afford as much as American consumers might be willing to pay in order that they could obtain larger quantities than we are now allocated. But certainly this cause of our present sugar shortage should be given considerably more publicity than it now receives, so that consumers in the United States may have an opportunity to consider the question and decide *for themselves* whether, when the authorization of the present rationing system comes to an end with the Second War Powers act, due to expire on March 31, 1947, they want it continued on the same basis, or wish to go back to getting sugar in the old-fashioned way, by competitive bidding in a free world market.

Another cause of the sugar shortage appears to be that large quantities from our allotment have been sent abroad with famine relief shipments to such countries as Yugoslavia. The inner circle of government officials responsible for the size of the sugar quota for domestic use may argue that nutritionists hold we normally eat more sugar than is good for us, hence it is to our own best interests to have our supplies cut down. It is undoubtedly true that the amount of sugar in the U. S. diet is too high, but making it so scarce so that it cannot be obtained for home baking, home-canned fruits, and homemade jellies, which are considered more wholesome sources of sweets than the average bakery products, "store" cookies, and soft drinks (which do seem to be quite generally available), cannot be justified as a wise policy from a health standpoint.

Another example of bureaucratic interference with customary food habits occurred last spring when the Administration ordered that flour must be so milled as to be of 80 percent extraction, instead of the traditional 72 percent or less that makes the customary "white flour" that has been the standard type for many decades. The action

(Continued on page 22)

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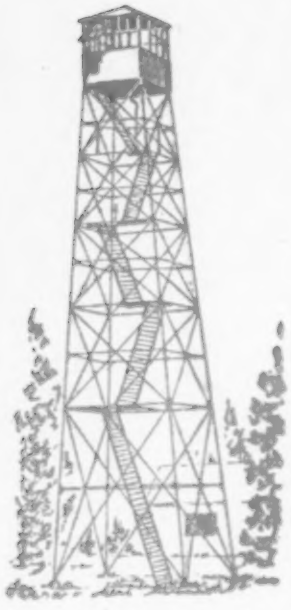


The Consumers' Observation Post

FLUORESCENT LIGHTING has been hailed in some quarters as a great advance in efficiency and effectiveness of artificial light. One serious disadvantage, however, has just been revealed, that the scientists dealing with illumination problems perhaps failed to take into account. It appears that fluorescent light does not flatter a woman's appearance. In fact, according to one lighting expert, Henry L. Logan, it tends to make women look a bit haggard. On this, another lighting expert remarks that even a fluorescent lamp which had the same illumination characteristics as daylight might not be unobjectionable from that standpoint. The combination of manufacturing developments and individual reactions of the using public as perceived by manufacturers and research men he thinks will take care of the matter quite well, in future. There is little doubt that many improvements in fluorescent lighting lie ahead, and one may expect important changes in the spectral (color) characteristics of fluorescent lighting of which there are at present three commonly available lamps: "daylight," giving a slightly blue light deficient in red; "3600 white," with a tendency, as with the standard incandescent lamp, to emphasize green and yellow pigments (also deficient in red); the third, "warm white," considerably warmer than the other whites and tending to bring out blue and pink ("warm white" is also considered to be more favorable to skin color).

* * *

FROZEN BEEF should not be held in the freezer for more than six months, according to studies made by D. C. McCoy and G. A. Hayner of the Frigidaire Division of General Motors. After that period, the flavor deteriorates rapidly. It appears also that beef which is aged before freezing tends to lose its flavor somewhat faster in frozen storage than that which has not been aged. This last factor is an important one for those to keep in mind who store meat in individual frozen storage lockers.

* * *

OIL BURNERS have experienced such a sales boom in certain sections of the country that oil jobbers are worried over the possibility that there may not be sufficient fuel oil to take care of them. The coal strikes contributed greatly to consumers' reconversion to oil heating. On the other hand, there has been a bright spot in the picture in the mild fall weather in the Northeast, which has caused the amount of fuel oil in storage to soar. Supplies were so high in some parts of the country, the Wall Street Journal reported the latter part of October, that the industry was faced with the possibility of making a cut in the price per gallon unless the winter turns out to be a severe one. The curtailment of rail shipments due to the coal strike, however, has since altered the picture somewhat.

* * *

SURPLUS CANDY AND COOKIES in the amount of some 13 thousand tons were collected from Army bases in the Pacific and brought to the Oakland, California base. When, on examination, it was discovered that the products were wormy and moldy and had generally deteriorated, they were condemned and sold under a contract that stipulated they were to be used only as food for animals. Although the cookies were converted to this purpose, the candy was sold to the public in retail stores in San Francisco, Los Angeles, and Oakland, and in vending machines in theaters in San Francisco. Prompt action by the State Bureau of Food and Drug Inspections was responsible for the removal of a con-

siderable amount from the market. Consumers should be on the alert to report to city and state authorities the appearance of such substandard products in their own sections of the country.

* * *

USED CAR SALES across the country are reported to be falling and prices are dropping, but secondhand cars are still no bargain. Although deliveries of new cars are slow, consumers who can make their present cars do or who can do without such transportation for a few months more will be wise to wait for new cars. The secondhand cars that have seen four years or more of service during the war years will be good buys only at extremely reduced prices, much lower prices than those now prevailing.

* * *

SUBSTITUTES FOR WHIPPED CREAM made their appearance during the wartime shortage of whipping cream. At least one expects to hold its present popularity in the post-war years. Called "Whip Topping," it consists of soy protein, vegetable fat, carbohydrates, salt, flavoring, and coloring. Its price is 26 cents a half pint, or about 7 cents less than a comparable amount of whipping cream. It is sold frozen, and distributed through frozen food dealers. For whipped cream which is used largely for decorative purposes, this soybean product will probably do well enough.

* * *

WHAT MAKES A BLANKET WARM is a subject of continuing research. One of the most recent studies, made by P. A. Gilmore and E. P. Hess on thirteen blankets of wool, cotton, paper, and combinations of various fibers showed that, with one exception, the thickest blankets were warmest. Laundering and dry cleaning increased the protective value of blankets containing wool, except in one case, and decreased this factor in blankets containing cotton. All-wool blankets showed the least shrinking after cleaning or laundering, while blankets containing rayon had the highest shrinkage.

* * *

STORAGE BATTERIES are hard to find, and it will be wise for car owners to pamper the one they have to make it last as long as possible. It is most important to maintain the battery liquid at the proper level, 3/8 inch above the top of the plates in batteries which do not have a level indicator, by the addition of distilled water. Batteries should be securely held in place so that they do not bounce around, as excessive motion may cause cracking of the case and loosening of the active material in the plates. In cold weather the car should not be left unused in the garage from one week end to the next or the battery will likely go dead. Where the car is not in constant use, it will be wise to start the engine at least once a day and run it at a speed that gives a good rate of charge for the battery, until the engine is thoroughly warmed up. This is good for the engine, too, incidentally, but of course the engine should not be "raced" at any time.

* * *

PRICES OF LUXURY FURS dropped from 10 to 30 percent last fall, with mink leading the list. One New York department store advertised fur coats at a reduction of 33-1/3 percent. The 20 percent government luxury tax, however, still adds a sizable sum to the price of a fur coat, and many thrifty-minded buyers will wait until this tax is repealed or reduced.

* * *

THE LARGE PROPORTION OF CHILDREN with poor food habits is reported by one expert to be "one of the biggest problems to be faced by all interested in child health and welfare." The number of well-cared-for children who have to be urged to eat their meals is put at something like 60 to 80 percent. One of the causes of the difficulty in getting children to eat a varied diet of bland or mild-flavored foods is the too continuous and regular use of very sweet foods in infancy. It has also been suggested that there may be some correlation between the high-carbohydrate bottle formula and the extent of tooth decay among school children.

* * *

EXTERIOR HOUSE PAINT was in great demand last fall even though it was considerably below the pre-war product in quality. Late purchasers, however, had difficulty in finding supplies. All three of the essential ingredients, linseed oil, lead, and titanium dioxide were scarce. With the elimination of

(The continuation of this section is on page 29)

Electric Room-Heaters—
"Bowl Heaters" and Other Types

WHEN considering the matter of electric heaters, it is important to understand at the outset that one will get more heat in the living room by the burning of a given amount of coal in one's own furnace or stove than can be obtained through the burning of the same amount of coal under the boilers of the electric plant to make steam to run the turbine that turns the electric generator which sends the electricity to the home where it is expended in an electric heater.[1]

But electric heaters present a number of attractive features. They are prompt in operation, do not vitiate the air, do not emit odors (unless dust has been allowed to collect on the heater element), they do not require pipes, flues, or a supply of additional fuel. The heat they generate can be applied when and where it is needed. They usually present less hazards of operation than other types of heaters. They are very readily installed and put into operation, many models are easily moved from place to place as use or fancy may suggest, in many types the heat emitted may be directed to a chosen spot, they are noiseless in operation, usually present an attractive appearance which is frequently enhanced by the glow of a heater element when in operation, and so on. Practically the only drawback is the relatively high cost of operation (except in a few districts where electric energy is available at unusually low rates).

Manufacturers' advertisements often claim that their electric heaters are more efficient than other types. So far as the conversion of electric energy into heat is concerned, *all electric heaters are equally efficient;* in fact, they are "perfect," the efficiency being 100 percent.

Electric heaters differ in effectiveness only in the extent to which they can promptly transfer the heat generated in their hot wire coils to the room air, to a liquid in which they are immersed, or to a person in their vicinity. This transfer can be accomplished by the familiar three methods, conduction, convection, or radiation.

In *conduction* the heat generated in the heater element flows directly through solid material, preferably through metal, which has higher conducting power (thermal conductivity) than most non-metallic substances, into the object to be heated. Electric heaters in bottle warmers, water storage tanks, flatirons, etc., usually accomplish their task by conducted heat, but this method is seldom utilized for space heating.

In *convection* heating, the air immediately adjacent to the electric unit is warmed and this air then moves away with its load of heat to other regions where it imparts its heat to other volumes of air or to the objects in the room or space to be heated. Since the heated air expands, the denser cooler air pushes in below creating a "chimney effect" or "natural draft" which brings about the air motion without other aid. The ordinary column-type of steam or hot-water radiators used in homes and elsewhere impart a considerable part of their heat by convection air currents, in spite of the common use of the name "radiator."

It is soon evident that the effectiveness of convection heating depends upon securing (1) a good air flow, that is, a considerable volume of air moved per hour; and (2) upon the moving air carrying considerable heat, that is, the air should have been heated to a fairly high temperature as it leaves the region of the heater element. Careful design of the heater element, with creation of a good "chimney effect" by using tall heaters and channels to guide air movement, is an essential requirement for prompt heating of a room. Efforts in this direction may even result in such an increase in the mass of metal and other material that must first be heated up before a good chimney effect has been established, that considerable time is lost before the heater "really gets on the job," and the user may thus feel it is a "very slow" heater, even though it is in fact an unusually effective one after it

[1]The production of one kilowatt-hour at the outgoing lines of an electric plant has called for the expenditure of something like 25,000 British Thermal Units. (A British Thermal Unit is the heat needed to raise the temperature of one pound of water by one degree Fahrenheit.) This kilowatt-hour will produce 3415 Btu in the electric heater in the living room. If the 25,000 Btu had been expended as coal or oil burned in one's own boiler—whose efficiency would seldom be less than 50 percent—it would have produced at least 12,500 Btu in the living room or nearly four times as much heat as the electric heater, for the same expenditure of coal. One pound of coal can produce from 10,000 Btu (low-grade coal) to 12,500 Btu (good-grade anthracite). Two pounds of anthracite coal might cost 1½ cents. Its equivalent in electrical energy, 4 kilowatt-hours, would probably cost, on the average at least 14 cents; even when computed as the incremental cost on an electric bill for other service, 4 kwhr. would cost at least 6 cents to 8 cents, in most cases.

gets into full operation.

When the rapid air flow is sought by using high-temperature air, the heater wire is usually operated at a higher temperature (sometimes with a resultant shorter life); there is then likely to be some smell when the heater is first put into operation, as the accumulated dust is burned; and the emergent air may be hot enough to burn the hand if held directly in the air stream.

Convection heating of this gravity or "natural-draft" type has the inherent disadvantage that the warmed air rises at once to the ceiling of the room and then moves across the ceiling toward cooler walls down which it flows as it gives up its heat. Air temperatures in the few inches below the ceiling may be 15 degrees higher, and sometimes much more, than temperatures a few inches above the floor. The *average* room temperature will rise comparatively slowly as the 70-degree level moves down progressively from the ceiling as the hot air delivered by the convector heater piles up against the ceiling.

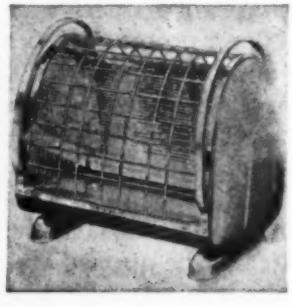
When *forced convection* is brought about by using a fan to sweep air across the heater unit and then out into the room, a much lighter electric heating unit can be used. By this method, warm air is obtained very promptly after turning on the heater, and furthermore the remote parts of the room are warmed up much more promptly because of the greater speed at which warm air is delivered to them. Also, if the fan pushes out the warmed air horizontally near the floor or at knee height, and this air rises by "natural" convection toward the ceiling, the "living zone" (floor to a six-foot level) is warmed up first rather than last. Two possible drawbacks are: Noise from the fan or blower, and the blast of air from the heater. This latter might be deemed unpleasantly chilly during the short time after first turning on the heater before the element has reached operating temperature, and might be unpleasantly hot under normal operation if a person received the blast directly. However, the improved effectiveness and much prompter rise in temperature of air in the "living-zone" will recommend a heater with a blower as well worth the somewhat greater first cost, provided a quiet design of fan blade has been used, and provided the design and workmanship of the motor are such as to give promise of long, trouble-free life. Motors with sealed-in lubrication are preferable; bearings should not get so hot during a long period of use that the lubricant is affected unfavorably. Incidentally, the electric energy expended in running the fan or blower is not an extra cost as all of it likewise is delivered eventually as heat in the room, so that the *efficiency* of the fan is a matter of no particular consequence.

Built-in heating coils in floors and baseboards have been applied effectively, especially in England; but this is getting into another field. Rugs with the heater element woven-in have been tried in Europe with highly satisfactory results from the standpoint of effectiveness; considerable care in design is required to make this means of heating safe and durable.

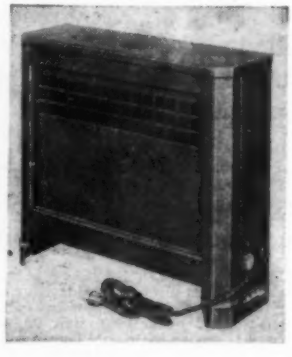
Heat is transferred by *radiation* from one surface to another without the functioning of the intervening air as a transfer agent. The action is similar to that of the sun, which sends its radiated heat to the earth over millions of miles of "vacuum." The amount of heat transferred depends somewhat on the nature of the radiating surface and on the difference of the fourth-powers of the temperatures[2] of the radiating and receiving surfaces. (Q varies as $[T_1^4-T_2^4]$.)

Thus, if a steam radiator were at 240°F (corresponding to about 10 pound per square inch gauge pressure) it would *radiate* nearly twice as much heat

[2]The temperatures are figured on the "absolute" or Kelvin scale of which the "zero" is at approximately 460 degrees below zero (Fahrenheit).



Arvin

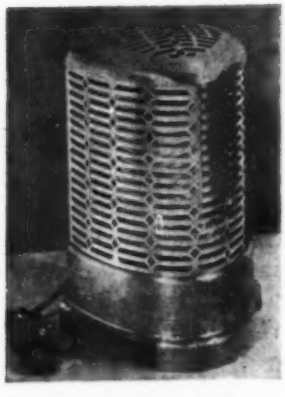


Noma

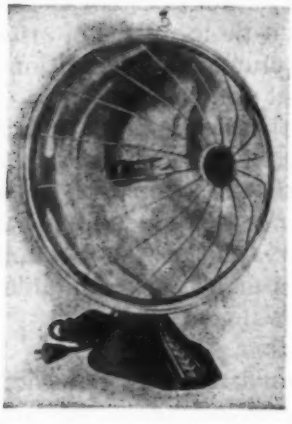
The above pictures and the three on the following page show some typical electric heaters of the radiant and convection types. (These pictures do not constitute recommendations of the heaters, as the particular heaters shown have not been tested.)

to a surface at 70°F as would the same radiator filled with hot water at 175°F. Obviously as the temperature of the heated surface gets into the luminous range, above, say, 1000°F, the heat given off by each square inch of radiating surface is greatly increased and a coiled wire presenting only 10 or 20 square inches of surface may radiate as much heat as a large steam radiator. A surface at 1550°F radiates about 100 times as much heat per square inch as does a surface at 240°F.

General Electric



Westinghouse



Westinghouse Cosy-Glow

What happens to the radiated heat when it strikes the receiving surface depends on the nature of the receiving surface. If that surface is somewhat rough and blackened it will absorb practically all the heat that comes to it. The temperature of the surface of the receiver will be raised somewhat in consequence. If the temperature is raised enough, the receiver surface will, in turn, begin to radiate heat. On the other hand, if the receiver surface is polished and light in color it will reflect back into space a great deal of the radiated heat which comes to it, and so only a fraction of the heat that strikes it is absorbed to warm it up.

Radiant electric heaters then will be characterized by a heater element operating at a luminous temperature with most of the element visible. An observer will get some sensation of warmth whenever he stands where he can see the heater element. This sensation will be stronger with elements that operate at a bright red or yellow temperature, and where a reflector is used to gather up heat rays from the heater element that would otherwise pass off in other directions, and redirect them in a chosen direction. Even a 600-watt heater element can produce a very pleasant sensation of warmth over a limited area of the body, at a distance of six feet or more, when the reflector is of an efficient type.

Radiant heaters should not be expected to serve also as efficient *space heaters.* It is true that objects which intercept the radiant heat rays, be they furniture or the walls of the room, are heated up and, after a while, will pass some of that heat on to the adjacent air. But this is a slow and quite inefficient method of heating room air. The proper function of a heater of the radiant type is to warm a limited area of a person's body, and this is the only job it can do with reasonable effectiveness. The bowl type of heater is very useful in the bathroom, or in a cold kitchen in the early morning. Low-temperature radiation heating panels set all about a person may keep him comfortable even when the actual temperature of the air in the room is below 60°F. But radiant heaters are of little use where persons (small children, for example) are moving about and so only infrequently or accidentally come into the path of the radiated heat.

Electric-water or electric-steam radiators are frequently offered to persons desiring an electric heater. In these devices a considerable mass of water is added to the masses of metal which must be heated up by the electrical energy before heat begins to be contributed to the room. The heat transfer to room air will be in large part by convection, in part by low-temperature (180°F to 212°F) radiation. The efficiency of transfer will be no better than that of ordinary steam or hot-water radiators. If the mass of the radiator and its water content are assumed to be equivalent to 50 pounds of water, an electric heater rated at 1320 watts (the largest rating permitted by the National Electric Code for convenience outlet use), would raise the radiator tem-

perature in one hour to only 140°F, starting from 50°F. Most users would feel that the radiator was not yet "hot." (Of course the heat expended in the unit in getting it up to operating temperature will be returned to the room air after the current is turned off.)

Room heating is required to replace the heat which escapes to the colder outdoor air by conduction through walls and windows, and by air motion through cracks. In most rooms the windows present the greatest loss of heat, which occurs both through the glass and at the crevices. For example, the heat which is lost per hour through a window three feet wide and six feet high from a room temperature of 70°F to an outdoor temperature of 0°F (quiet winter day with wind velocity below 15 miles per hour) is equivalent to nearly 420 watts of electric power (1.5 cents an hour, at average rates). Three such windows in a room would require a heater with 1250 watts input for this purpose alone, to maintain the temperature at 70°F (4.4 cents an hour). Ill-fitting windows with large crevices could readily increase the heat requirement by 50 percent. On the other hand, the use of well-fitted storm sash would cut the loss to 40 percent of these values, about 160 watts for a window three feet wide and six feet high (0.6 cents an hour).

A computed value for the heat loss from a living room of a frame cottage with mineral wool or other efficiently disposed insulation between the studding might be of interest. Assume the room to be 20 feet long and 13 feet wide with two of its walls outside walls, the other two as parts of adjoining rooms also maintained at 70°F. There are three windows, each three feet by six feet, well-fitted and provided with snug-fitting storm sash. Ceiling height, eight feet, six inches. Air change, one change per hour. Outdoor temperature, 0°F, little wind. The heat loss under these conditions is equivalent to nearly 2000 watts of electric power (7 cents an hour).

If there were no insulation between studs, just the usual clapboards, paper, sheathing, studding, lath, and plaster; and if there were only single windows with the usual crevices, and air change rose to 1.5 room volumes per hour, the heat loss would correspond to 4600 watts of electricity, or 2.3 times as much as for the well-constructed room. It is obvious that several heaters, each rated at 1000 watts or more, must be in use if electric heating is to be depended upon as the sole source of heat in severe winter weather, even in a single room.

Hazards of electric heaters are of two kinds, fire hazards and shock hazard. The fire hazards are those associated with all heaters where there are parts or materials operating at high temperatures. Contact of the person with the heater body can result in a serious burn. A fire will likely be started if combustible material falls on the heater element. Guards of various kinds about heater elements usually prevent accidental contact. The Underwriters' Laboratories' Standard for Electric Heating Appliances (4th Edition, May 1940, revised in part as recently as June 1945) requires that the heater be so designed that it may be overturned on the carpet, or, when in normal position and operation, may be covered with a cloth, without causing the carpet or cloth to glow or flame in either case. There is no effective way, of course, to insure that deliberate contact with the heater element is impossible any more than such complete prevention of access by accident or carelessness is possible with other types of fuels and heaters. The consumer should by no means assume that the specified and desirable degree of safety will be assuredly provided in any heater which he buys, but must at all times take deliberate precautions to prevent fire risk in the use of the heater, for an electrical fire prevention bureau reports that electric heaters with red-hot elements behind a wire cage or grille have been known to ignite dresses and to cause fatal burns.

Similarly, for the shock hazard. It is seldom possible completely to prevent deliberate contact with live parts as by a child's exploratory fingers, although such contact can often be made highly difficult. Guards can readily be provided which will prevent accidental contact. The insulation which supports the heater element and the wiring should be of such character that at normal operating temperature the leakage current from the electric circuits to the metal frame or other readily accessible parts of the heater does not exceed a few ten-thousandths of an ampere under any condition of normal use.

If these several precautions and conditions of use are observed, the benefits and conveniences of electric heating enumerated at the beginning of this article are available to the intelligent user.

* * *

In an article to follow, actual performance tests of some heaters will be reported.

Test of 12 Brands of Men's Socks

ORTHOPEDIC surgeons and instructors in physical education have long known that foot deformities may result from socks or stockings with feet that are too short, as well as from short shoes. While this is especially serious for children, adults' feet, too, may be injured by incorrectly fitting socks. It is unfortunate, therefore, that for many men's socks, the marked size is no guarantee that the sock will fit after it is washed. In the present test, for example, only *three out of 12 pairs of socks tested* were as large or nearly as large as marked size after washing, though all of the socks were as large as marked size, or larger, before washing.

Sizing Unsatisfactory

While the sizing of the 1946 socks was better than was found by Consumers' Research in a 1944 test, when only three out of 30 socks were found to be as large as marked size after washing, it is still an indication that there is much to be done in the manufacturing field before a consumer can trust a size label in buying hose. One sock in the present test can serve as an example. Marked size 11½, its measured size before washing was 12 inches, but after washing it was only 10⅝ inches—almost one inch smaller than marked size. (Measurements were made under a definite small tension, both before and after washing.) The U. S. Commercial Standards for hosiery provide for size measurements to be made to the nearest half inch, which gives a tolerance of almost a half size in marking hose under the standard.

There are, therefore, two precautions that should be taken by the consumer: First, to buy socks with feet actually as long as the marked size; and second, to buy socks which are long enough to be wearable after washing.

The consumer who is willing to take the time and trouble will use a ruler or clerk's tape to check the size before purchasing, especially when the socks are high-priced ones. As to the second precaution, the best rule, perhaps, under present trade conditions, is to purchase socks which are a half size larger than usually indicated; that is, a man whose shoe size is 9 should buy size 11½ instead of 11. Those who

"Genuine Wrap" and "Mock Wrap" Decoration

"Genuine wrap" at the left. "Mock wrap" decoration on the sock at the right may pull out and hence look ragged, with wear and laundering. (Both socks have been photographed inside out, to show construction.)

are in doubt as to the hose size usually indicated can be guided by the following table.

Shoe Size	*Hosiery Size*
6½ - 7	10
7½ - 8	10½
8½ - 9	11
9½ - 10	11½
10½ - 11	12
11½ - 12	13

If the foot is especially fleshy or if the shoe is a "D" or wider width, it is wise, to insure a good fit, to buy a size larger sock than indicated in the table.

Abrasion Resistance

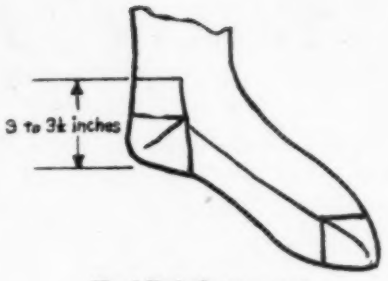
Nylon is again showing up in men's socks, both in blends with other fibers and alone. Nylon socks, however, are still in the "luxury" price class—$1 and $1.50 up per pair—and were not included in the present test. The word "nylon" has a magic appeal for women, who do most of the buying of men's socks. Use of nylon fiber is not, however, a guarantee of long-wearing qualities.

In CR's test, while one of the socks containing nylon showed good resistance to abrasion, other socks, also containing nylon, were only fair in this respect. One sock, the Sears' *Pilgrim*, with rayon, cotton, and nylon fibers, was unusual in that some areas of the toe wore very well, other areas wore fairly well, and still others were poor. This difference might have been caused by the unevenness of the yarns used, which was sufficient to be apparent to the eye. The *Pilgrim* socks were rated *B* because the variation in abrasion test results seemed to indicate that the consumer could not be sure of getting good wear from them.

Sometimes socks fail in the abrasion test because proper reinforcement at points of wear is lacking. Men's socks should be reinforced at the toe, heel, and at a region just above the heel that is called the "high splice." While the toes and heels are usually reinforced even in poorly made socks, occasionally the high splice reinforcement is too low. The high splice reinforcement should, of course, always be present. In men's low-cut shoes there is a distance of about 2½ inches from the heel base to the top of the back of the shoe. This means that wear at the heel of the sock may occur as high as about 3 inches from the bottom of the sock, and the high splice reinforcement should therefore extend to a point 3 to 3½ inches from the bottom of the sock measured as laid flat on a table.

Some socks, while reinforced to give good wear at the toe, do not show good resistance to wear at the high splice. Where significant differences in abrasion resistance were found in the test, as between toe and high splice, this is noted in the listings for the benefit of the men who find that they wear out hose quicker at one area than another.

One factor related to the durability of men's socks and one which to many may be al-



Heel Reinforcement

Heel reinforcements should be high enough to guard against wear, which may occur at a point as high as about 3 inches from the bottom of the sock (measured as laid out flat on a table).

Sock Shrinkage

This sock was marked size 11½ and measured 12 before washing. After washing, it measured 10⅝ inches under small tension; it measured even less when the tension was removed, as this illustration shows.

most as important as wearing out due to abrasion is the durability of appearance. Socks should retain their color after washing. Almost every housewife knows that men's socks are likely to "bleed" color into the wash water, and she provides for this by washing them alone and not with the regular household laundry. Some socks, however, bleed very little in the wash water. Considerable bleeding does not always cause significant deterioration in the appearance of the sock. In the present test, for example, only one sock, the *Wearbilt*, was significantly poorer in appearance after washing, although other socks tested showed as much bleeding and fading.

All the socks in the present test were circular-knit—that is knit tube-like on a circular machine. Circular-knit socks have no seam in the leg or in the sole of the foot and are considered by many to be more comfortable than the more expensive full-fashioned hose, which have a seam along the center of the bottom of the foot and up the leg.

Men's socks are often decorated with a clock or pattern. When this is woven in as a part of the body of the sock, it is called "genuine wrap." A cheaper method of applying a decoration is known as "mock wrap." In this, strands of yarns, forming the pattern, are only loosely held in the fabric. The mock wrap construction can be identified by long loose ends of colored thread on the inside of men's socks, which may pull out with wear and laundering. Only one of the socks tested, the *Green Star*, had mock wrap decoration.

The socks included in this study were examined for reinforcement (including the height of the high splice region) and for type of decoration. Measurements for size were made both before and after washing. "Bleeding" tests and an examination for fading after washing were made, and the results reported in the listings. Absence of comment concerning fading signifies that the socks did not appear significantly faded after washing.

Ratings were based principally on the performance of the socks in abrasion tests made on the toe and high splice regions on a special abrasion testing machine constructed by Consumers' Research. Ratings are cr46.

A. Recommended

Westchester (Sold by F. W. Woolworth stores) 35c. Ankle length, elastic top. Blue rayon, cotton, and nylon with ornamentation. Resistance to abrasion: of toe, good; of high splice, fair. Had some but not too great a tendency to "bleed" (lose color) into wash water during washing. **1**

Crestwoven (Montgomery Ward's Cat. No. 30—302) 53c. Blue rayon and nylon with ornamentation. Resistance to abrasion, good. This sock gave best performance in abrasion test of all socks tested. Color "bled" (lost color) badly into wash water during washing. **3**

Phoenix (Phoenix Hosiery Co., Milwaukee) 55c. Blue rayon, mercerized cotton, and nylon without ornamentation. Resistance to abrasion: of toe, good; of high splice, fair. Very little bleeding of color during washing. **3**

B. Intermediate

GCM (Sold by G. C. Murphy stores) 44c. Oxford gray rayon, nylon, and mercerized cotton with ornamentation. Resistance to abrasion, fair. Did not bleed color during washing. **2**

Green Star (Sold by H. L. Green Co., Inc., stores) 44c. Oxford gray rayon, nylon, and mercerized cotton with mock wrap ornamentation that was very poorly done. Resistance to abrasion: of toe, fair; of high splice, poor. Color bled badly during washing. **2**

Pilgrim (Sears-Roebuck's Cat. No. 86—2031) 45c. Black rayon, nylon, and mercerized cotton without ornamentation. Resistance to abrasion, good, although performance of toe in this respect was variable. Some areas of the toe showed good resistance to abrasion, others poor. Very little bleeding of color during washing. **2**

Red Seal (Red Seal Hosiery Co., N.Y.C.) 45c. Blue cotton and rayon with knit stripes and clocks. Resistance to abrasion: of toe, poor; of high splice, fair. Color bled badly during washing. **2**

Interwoven (Interwoven Stocking Co., 244 Madison Ave., New York 16) 70c. Blue rayon and mercerized cotton with ornamentation. Resistance to abrasion: of toe, good; of high splice, poor. Did not bleed or lose color into wash water during washing. **3**

Westminster (The Nolde & Horst Co., Reading, Pa.) 65c. Ankle length, elastic top. Blue rayon, nylon, and cotton with ornamentation. Resistance to abrasion, fair. Color bled badly during washing. **3**

C. Not Recommended

Wearbilt (Chester H. Roth Co., Inc., N.Y.C.) 40c. Blue cotton and rayon with knit stripes. Resistance to abrasion, poor. Color bled badly during washing. Sock had faded appearance after washing. **1**

Holeproof (The Holeproof Hosiery Co., Milwaukee) 50c. Black rayon and cotton with ornamentation. Resistance to abrasion, poor. Very little bleeding of color during washing test. **2**

Wilson (Wilson Brothers, 180 Madison Ave., New York 16) 65c. Blue rayon and cotton with ornamentation. Resistance to abrasion, poorest of socks tested. Color bled badly during washing. **3**

Automobile Battery Chargers or "Boosters"

THERE are few motorists who do not at one time or another find their car's battery dead. This is not surprising considering the demands made upon a battery by a modern car; lighting may require about 16½ amperes, ignition 1½ amperes, heater and defroster 7 amperes, and radio 7½ amperes, or a total of 32½ amperes; this load (less a charging rate of about 12 to 20 amperes) if all applied at once, would sometimes be enough to discharge a car's battery completely in a few hours. In addition to this, starting a car in summer imposes the extreme load of 125 to 300 amperes and in winter 300 to 700 amperes, for a few seconds—sometimes, of course, much longer. When the storage battery fails to start the car, the owner is put to considerable inconvenience. Either he must be pushed to start the engine so that he can get to a garage for a "quick charge" or he must phone a garage for service, and a rental battery. This risk can to a considerable degree be eliminated by those who have garages with electric power outlets, by installing a "battery booster" or charger. Using the charger from time to time for a few hours will serve, ordinarily, to keep the battery in a substantially fully charged condition; this is particularly necessary at times when severe cold weather puts an extreme load on the battery in starting the engine.

Such a charger can charge a partially or fully discharged automobile storage battery from the alternating current line. It is not necessary to remove the battery from the car to charge it. A booster comprises essentially a step-down transformer for reducing line voltage to about 11 volts, and a rectifier unit of the dry-disk type (presumably either copper oxide or selenium disks). The characteristics of the rectifier are such that the booster maintains a d-c output voltage slightly in excess of the voltage of the battery being charged, so that a current of 3 to 10 amperes is forced through the battery in opposition to its own voltage (normally about 5 to 6.4 volts). As charging proceeds, the voltage of the battery (the counter electromotive force) rises and approaches the value of the voltage being supplied by the charger; in consequence the charging current decreases somewhat. After a battery has been charged, the booster should be disconnected immediately from the battery terminals; otherwise, if only the power supply is turned off, the battery will slowly discharge itself, at a rate that in some cases may be as high as 0.4 ampere, through the booster rectifier.

The boosters tested were rated to supply, respectively, charging currents of 4 to 2 amperes, 6 to 3 amperes, and 10 to 5 amperes; two models of each of the three sizes were tested. Tests were made for electrical leakage between the electrical circuit and accessible metal parts at room temperature as the boosters were received, after exposure for 24 hours to conditions of 85% relative humidity and a temperature of 87°F, and at a temperature corresponding to operation at rated voltage for one hour. Proof voltage tests were also made at 1000 volts on each booster as received and also at a temperature corresponding to

Battery Boosters—
Comparison of Rated and Measured Input at 115 Volts A-C

	Rated Watts	Measured Watts
Ward's, No. 7090	50	79
All State, No. 416W2	not rated	79
Ward's, No. 7097	75	95
Acme (6 to 3 amp. model)	93*	83
Acme (10 to 5 amp. model)	155	127
Ward's, No. 7099	125	203

*At an assumed power factor of 90%; actual power factors fell in the narrow range of 88.5% to 92.5%.

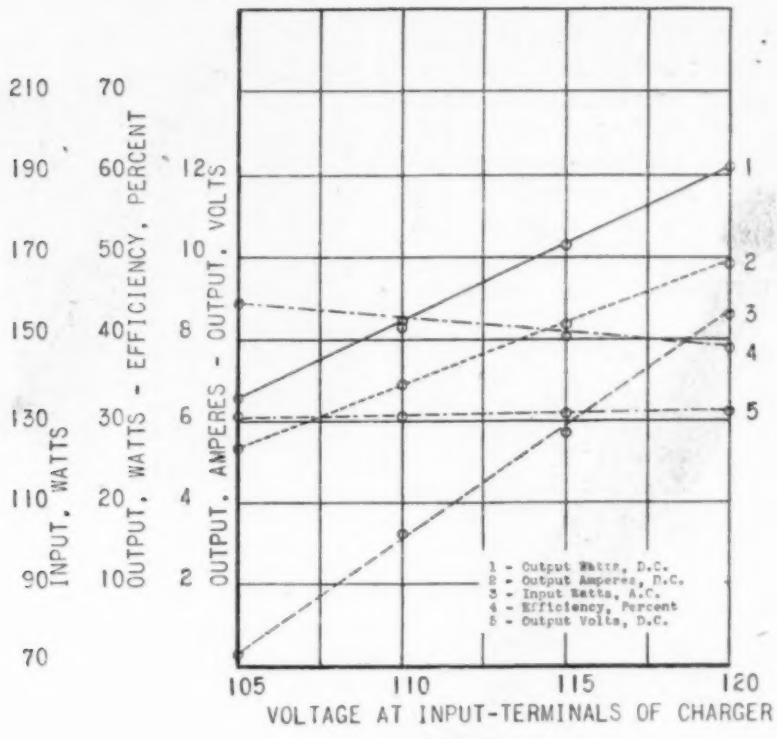

INPUT, WATTS
OUTPUT, WATTS - EFFICIENCY, PERCENT
OUTPUT, AMPERES - OUTPUT, VOLTS
1 - Output Watts, D.C.
2 - Output Amperes, D.C.
3 - Input Watts, A.C.
4 - Efficiency, Percent
5 - Output Volts, D.C.
VOLTAGE AT INPUT-TERMINALS OF CHARGER

Figure 1

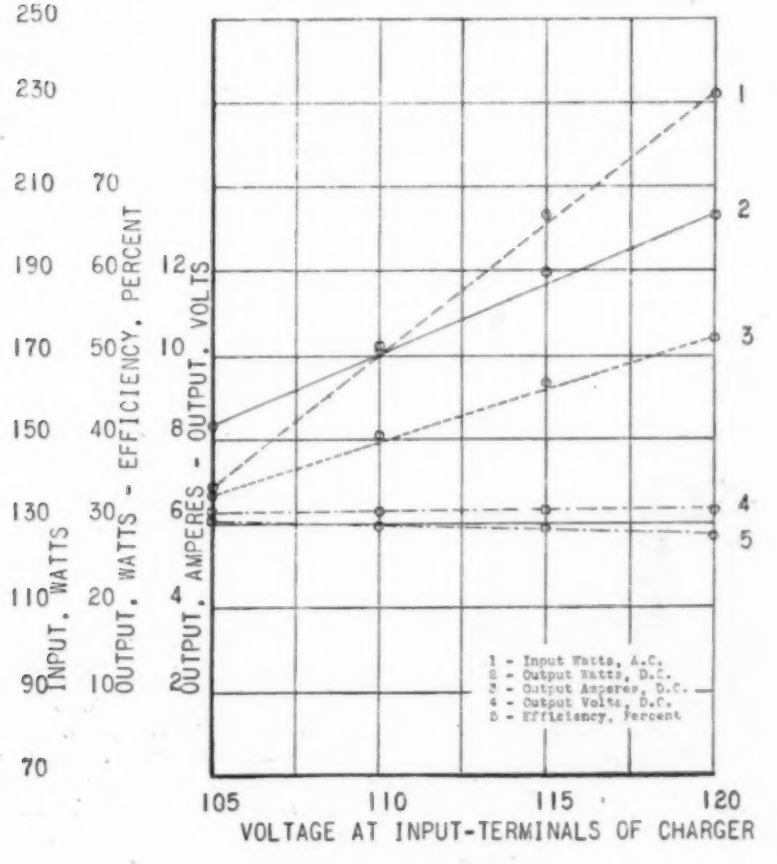

INPUT, WATTS
OUTPUT, WATTS - EFFICIENCY, PERCENT
OUTPUT, AMPERES - OUTPUT, VOLTS
1 - Input Watts, A.C.
2 - Output Watts, D.C.
3 - Output Amperes, D.C.
4 - Output Volts, D.C.
5 - Efficiency, Percent
VOLTAGE AT INPUT-TERMINALS OF CHARGER

Figure 2

The two figures at the left show the relationship of output current and voltage and watts input and output to the voltage available at the power outlet in the garage. (Figure 1 is for the Acme R27107, *the most efficient booster in the group. Figure 2 is for* Ward's 7099, *the least efficient of the group.) Since the output current (and wattage) is greatly affected by the voltage available at the socket, it is obvious that a given battery charger will recharge a weak battery considerably more quickly when used on a line which has wire of adequate size and is not overloaded. Where all-night charging is possible, the difference would usually not be important, but where shortness of time may be a factor, a charger of relatively high output, such as the* Acme R27107, *should be selected for use in any case where there is doubt about the adequacy of voltage at the outlet.*

operation at rated voltage for one hour. All six of the units studied passed both tests and are therefore considered not to present any particular shock hazard in use, unless there should be a defect of manufacture that slipped by factory inspection, that would show up after a period of use. Performance tests were made on charging discharged batteries having voltages at the start of from 5.7 to 6.1 volts; readings were also taken when batteries had a terminal voltage as high as 6.44.

The 6.44 volt figure represented a fully-charged battery —the condition at which the charge would taper off to its minimum value, and at which the charger could be shut off and disconnected.

Temperature measurements were made at various locations on each booster after it had been in operation for 16 hours with an artificial resistance load adjusted to draw maximum rated current output for 115-volt input. These tests indicated that the disks operated at a high temperature; temperatures at the top edge of the center cooling fin varied from 123.8°C for the smaller *Acme*

Acme, Type No. R27107

booster, to 148.1°C for the largest *Montgomery Ward* booster. The temperatures reached by all of the boosters were judged to be rather high; information is not at present available as to whether these temperatures would result in short lives for the rectifier units. (The point is perhaps, though not certainly, of minor importance in these chargers, as most consumers will have need to make only

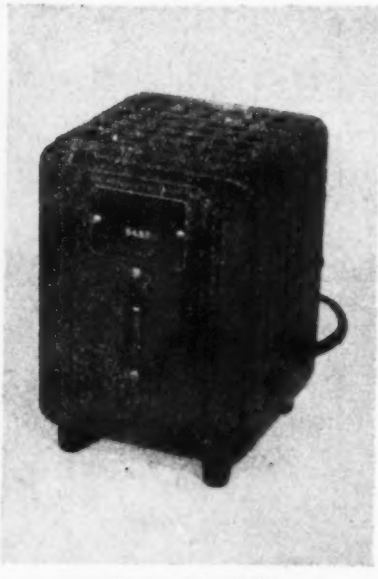
Ward's, No. 7097

occasional use of a battery booster—and the rate will taper instead of staying at its maximum value for 16 hours.)

Each booster was provided with a thermal overload cut-out for protection against damage by overload or connection to the battery made in the reverse direction due to the user's error or misunderstanding of the problem. All cut-outs were found to operate satis-

All State, No. 416W2

factorily. The cut-outs of the *Acme* boosters were reset by an insulated button; resetting of the other cut-outs required the user to press on a hot metal strip forming part of the cut-



Ward's, No. 7090

Ward's, No. 7099

out (too hot for safe finger contact in each case).

Efficiencies were low, varying from just below 30% to just over 40% for battery charging from a 115-volt line; the differences between the several makes in this respect were judged not to be of particular importance to anyone using the chargers only occasionally (as would usually be the case) as the total energy consumed over a year's period of normal use would be small.

Figures given in the listings for watts input and amperes output were at 115 volts a-c. The first figure in each case is the rated value, followed by the actual value in parentheses. Listings are in order of efficiency. Price ratings are based on price per ampere of maximum output.

B. Intermediate

Acme, Type No. R27107 (Sears-Roebuck's Cat. No. 28—07176) $11.19, plus postage. Watts input a-c, 155 (127); amperes output d-c, 10 to 5 (8.35 to 7.13). Efficiency, 40.2% (highest in group tested). Temperature rise second lowest in group but believed to be unfavorably high for maximum operating life of the unit. Time required for overload cut-out

to open, with output terminals short-circuited, 1 second. **2**

Acme, Type No. R27106 (Sears-Roebuck's Cat. No. 28—7175) $8.65, plus postage. Watts input a-c, 93 (83); amperes output d-c, 6 to 3 (5 to 3.9). Efficiency, 36.2%. Temperature rise lowest in group. Time for cut-out to open, 1 second. **3**

Ward's, No. 7097 (Montgomery Ward's Cat. No. 61—7097L) $7.85, plus postage. Equipped with ammeter (a very desirable feature). Watts input a-c, 75 (95); amperes output d-c, 6 to 3 (5.4 to 3.8). Efficiency, 34.2%. Temperature rise high, close to *Ward's 7099*. Time for cut-out to open, 5 seconds. **2**

All State, No. 416W2 (Sears-Roebuck's Cat. No. 28—7177) $5.65, plus postage. Watts input a-c, not given (79); amperes output d-c, 4 to 2 (4.4 to 3.4). Efficiency, 33.8%. Time for cut-out to open, 5 seconds. **2**

Ward's, No. 7090 (Montgomery Ward's Cat. No. 61—7090L) $4.85, plus postage. Watts input a-c, 50 (79); amperes output d-c, 4 to 2 (4 to 3.18). Efficiency, 30.4%. Temperature rise high, close to *Ward's 7099*. Time for cut-out to open, 7 seconds. Appeared to be identical except for nameplate with *All State*, No. 416W2. **1**

Ward's, No. 7099 (Montgomery Ward's Cat. No. 61—7099L) $10.85, plus postage. Equipped with ammeter (a very desirable feature). Watts input a-c, 125 (203); amperes output d-c, 10 to 5 (9.4 to 8.3). Efficiency, 29.4% (lowest in group). Temperature rise highest in group (see comment on *Acme R27107*). Time for cut-out to open, 2 seconds. **1**

THE COLLEGE OF ST. CATHERINE

★ ★ ★ Laundry Soaps ★ ★ ★

ALTHOUGH the war is over, except legally, soaps have not yet been restored to their pre-war quality and types, and as housewives know, they are very scarce everywhere. Moreover, many brands which were easily available in 1941 are in only scattered or limited distribution at the present time. CR has recently had tests conducted on a number of brands of laundry soaps of various types (bar soaps, flake, chip, and powdered soaps) to give subscribers information on their present quality. Although it was reported 11 months ago that laundry and chip soaps were going to be more plentiful because the Army was no longer in the market, most products in this class seem to be about as scarce as ever; although the domestic supply of fats and oils is said to be improving, soap manufacturers have been put at the bottom of the priority list of users of such materials.

Because of the war-produced world-wide scarcity of fats and the extent to which American fats and soaps are being shipped abroad, rosin and builders are believed to continue in use to an extent which would not have been characteristic of pre-war soaps. (During the war it was required that rosin be utilized in soap manufacture. Use of rosin as an adulterant is no longer required.) Rosin tends to give soap a sticky feeling and may deposit a yellowish color on clothes, particularly when they are boiled in hard water. Builders, which are usually alkaline substances, such as sodium orthosilicate, sodium metasilicate, trisodium phosphate, and soda ash, are much used, both because they are cheaper than soap, and because they help to make a good lather. Some of these builders have definite advantages to the consumer; thus sodium metasilicate and sodium silicate help to prevent the dirt from re-precipitating into the clothing, as will often occur otherwise when heavily soiled garments are put in the same washing load with garments that are lightly soiled. These substances also help to cut grease, which is present in much of the dirt in clothing, particularly work clothing; and besides, they help with the problem of washing in hard water.

Soap builders serve to eliminate the deposit of hard soap curds which come from the combination of soap, when used alone, with calcium and magnesium compounds in the water. (These are the typical hardness compounds of hard water.) Builders, however, have their disadvantages: first, that they tend to increase the irritating effect of soap on the hands; and second, they are harmful to delicate fabrics such as silks, rayons, and woolens, which should not be subjected to the action of strongly alkaline materials.

Many soaps contain a small proportion of fillers or "make-weights." These have no real function and are objectionable, because when they are present, an insoluble residue tends to be left on the clothing, even when soft water is used. (Fillers are likely to be starch, clay, or talc.) The highest percentage of water-insoluble material in the present test was that in *Fels-Naptha* bar soap (a little over 4%).

The user of soap should perhaps be reminded that the consumer tends to use too much of flake and chip soaps, because of their easy solubility. A more sparing use will be desirable, since added quantities of soap, above the minimum effective in making a good

lasting suds, do no good. The water should be churned vigorously after the soap has been added so that all the soap gets into solution, and good suds are produced. A depth of suds of about three inches is correct for laundering; for other types of washing, a two-inch suds should serve.

The soaps which are now being made without coconut oil (which was missing during wartime and is still scarce) do not lather quite so freely as the pre-war soaps did, but here again there is an advantage in that the absence of coconut oil produces less irritation of the skin.

A soap suitable for laundering fine fabrics must be mild and neutral and substantially free from builders and fillers (corresponding to alcohol-insoluble and water-insoluble material respectively), and such a soap has all the properties needed in a good toilet soap, so that it can be used for either purpose, if desired. Where economy is not an object, such a soap can be used for dishwashing, and it will tend to reduce the irritation and alteration of the skin which occurs with a strong soap when the hands must be in contact with soapy water for a considerable time each day. Bar laundry soaps provide soap at a somewhat lower cost than flake, chip, or powdered soaps, although if one of these types of soap is carefully selected, by use of CR's findings, it may give almost as much detergent value for the money as the bar soap. Consumers make a mistake in judging the contents of a package of soap powder by the size of the package, for packages are often slack-filled, and, besides, the material varies greatly in fluffiness; with the wide varieties of builders and fillers that are present, the net weight of contents, without any knowledge of the analysis of the product, does not give a fully reliable indication of economy in buying.

As in the previous tests of laundry soaps, *Ivory* was the only bar soap to receive an *A-Recommended* rating. This soap had the desirable characteristic of being very low in content of both alcohol-insoluble and water-insoluble material (builders and fillers). It was found to be well suited for laundering with cool or lukewarm water, another quality which makes it desirable for use in laundering wool and silk fabrics. Its suds were of a long-lasting type.

The rapid rise in the marketing of all sorts of soap substitutes, including powdered detergents such as *Spic & Span*, *Sudz*, *WoolFoam*, *Coldfoam*, is one of the results of the continued acute shortage of soap. Some of these substitute detergents acquired great popularity during the war. However, they are very expensive considering what one gets in their use. One well-known brand, for example, which sold for $1 for a 7-oz. package, actually had an ingredients cost of less than 2c. Two other types of material that have been popular are soap solutions such as *Pocket Laundry* and soap substitutes typified by *Foamclen* and *Glim*, which are distinguished from soaps by their ability to retain detergent (cleansing) activity in the presence of the dissolved calcium and magnesium salts that are in hard water. Thus they can be used in hard or soft water, and will even work in salt water.

More brands of soaps would have been tested except for the extreme difficulty of finding a wide variety of brands of soap at this time. Figures in parentheses are prices per pound of actual "dry soap" content and show relative economy in use.

Since this report was prepared, soap prices have increased about 45%. The prices actually paid at the time the test was undertaken, some months ago, have been retained in the listings and will be useful, since the relationship between the prices of the soaps will be about the same as previously.

Pure Flake, Chip, and Powdered Soaps

A. Recommended

Chiffon Soap Flakes (Armour & Co., Chicago) 14-oz. box, 23c (27c). This soap contained the least builder (alcohol-insoluble matter) of any of the group. Some silicate was found to be present. It was entirely free from water-insoluble material (filler). The tests showed that it was not too well suited for laundering at low water temperature; its suds, however, were long lasting.

Ivory Snow (The Procter & Gamble Co., Cincinnati) 12½-oz. box, 23c (30c). This soap was low in builder and contained no filler. Silicate was found to be present. Well suited for laundering at low water temperature; suds long lasting.

Kirkman Pure White Flakes (Kirkman & Son, Div. of Colgate-Palmolive-Peet Co., Brooklyn, N.Y.) 18-oz. box, 23c (21c). This soap was low in builder and contained no filler. Silicate was found to be present. Well suited for laundering at low temperatures; suds long lasting.

Lux (Lever Bros., Cambridge, Mass.) 12½-oz. box, 23c (30c). Builder content somewhat less than 1%. Amount of filler was small, and well below the Fed. Spec. limit for soap of this type. cr45

Flake, Chip, and Powdered Soaps with Builders

B. Intermediate

Duz (The Procter & Gamble Co.) 21½-oz. box, 23c (19c). This soap

was lowest in the group in builder (a silicate) and was free from filler. However, it was the poorest of all the soaps tested in lathering at low water temperatures, and its suds were poorest in lasting qualities.

Rinso (Lever Bros. & Co., Cambridge, Mass.) 9-oz. box, 11c (29c). This soap contained considerable builder and a small amount of filler. Both silicate and orthophosphate were found to be present. Its lathering properties at low water temperature were relatively poor, but its suds were stable. Because of its especially high builder content, net soap content relatively low (66%).

Super Suds (Colgate-Palmolive-Peet Co., Jersey City, N.J.) 24-oz. box, 23c (23c). High in builder content but contained no filler. Not too well suited for laundering at low water temperature; suds were stable. Both silicate and pyrophosphate were found to be present. On account of high builder content, its net soap content was relatively low (65%).

C. Not Recommended

Oxydol (The Procter & Gamble Co.) 9-oz. box, 11c (30c). This was highest of the soaps tested in builder. It exceeded the Federal Specifications allowance for powdered laundry soap of 1.0% for water-insoluble matter or filler. Both silicate and orthophosphate were found to be present. It was found well suited for laundering at low water temperatures, and the suds were stable. On account of the high builder and filler content, the soap content was relatively low (64%—lowest, by a small amount, of the flake, chip, and powdered soaps tested).

Bar Laundry Soaps

A. Recommended

Ivory (The Procter & Gamble Co.) Low in both alcohol-insoluble and water-insoluble matter; contained practically no builder or inert material. Contained silicate. Well suited for laundering at low water temperatures. Desirable for washing of silk, rayon, and woolen fabrics. Suds long lasting.

B. Intermediate

Kirkman Borax (Kirkman & Son) This soap contained about 9.25% builder but was within the Federal Specifications limit of 11% for builder content of a bar laundry soap; it contained no filler. Contained silicate. This soap was found well suited for laundering in cool or lukewarm water, and gave a stable suds.

C. Not Recommended

Fels-Naptha (Fels & Co.) This soap fell outside the limit set by Federal Specifications for builder content and contained several times as much filler material as is permitted by the Federal Specifications. Contained silicate. Lathering characteristics at low water temperature relatively poor; suds were only moderately stable.

If We Seem to Be Slow—

Please have patience! It isn't possible these days for Consumers' Research to dispatch material and handle letters with our customary prewar promptness. As electrical appliances and other items which represent a major household purchase have begun to be available, there has been a rapidly increasing interest on the part of consumers in CR's ratings of such items. Many people are apparently trying to make up for lost time by purchasing articles that are coming to be available, or which at least are advertised as being available, for our daily mail assumes at times proportions of a veritable avalanche. Since here, as in other parts of the country, there is a severe shortage of clerical help, we can only ask subscribers to be patient.

At the present time it takes at least two weeks to complete the entry of a subscription and send initial material to you. On account of the accumulation of correspondence, it will often happen that at least ten days from the time we receive an inquiry of a simple routine nature will be required to look it up and get out an answer. With a more difficult question, considerably more time may be required, up to several weeks, since the technical expert or the consultant who must supply the answer (and who may often be in a distant city) may be working unremittingly on an urgent project that has to meet a printer's deadline in order to get the report into some particular issue of CR's BULLETIN.

Changes of address require at least three weeks to put into effect, for wrappers for a current mailing are addressed the last week in the month and then sent to the printer, who wraps the individual copies of the BULLETIN and delivers them to the post office between the 1st and the 10th of the month. As a rule, BULLETINS for the far western States are mailed first.

We are sorry we can't serve you more speedily, but no doubt the time will again come when we shall again be able to operate on a basis that permits prompt handling of subscriptions and inquiries from our readers. Bear in mind that when it is necessary to choose between answering inquiries and carrying on urgent work that underlies material that is to go into an early BULLETIN, we must necessarily give precedence to the work on the BULLETIN.

Fire Extinguishers—II

CO_2 Extinguishers

IT IS NOT unusual for exorbitant claims to be made for the extinguishment abilities of all types of fire extinguishers, though the practice is particularly prevalent in the sales promotion of the carbon dioxide types. On the whole, manufacturers of this equipment are reasonably fair in their advertising claims, but salesmen are overzealous in their description of the uses for which carbon dioxide extinguishers are acceptable. No Emergency Alternate Specification carbon dioxide extinguishers were manufactured during the war, due to the fact that the gas is maintained under high pressure in the container, and no substitute metals were known which could be safely used for the purpose. There are large quantities of surplus carbon dioxide extinguishers hanging over the market, and there will no doubt be considerable sales pressure to induce the public to purchase carbon dioxide extinguishers on the representation that they are good for every sort of fire—which is not at all the case.

Carbon dioxide extinguishers have been successfully used for fires in or around electrical equipment, for which the type is especially effective; to extinguish flaming grease in hotel kitchens, where food is not harmed by it. Carbon dioxide extinguishers were used in large numbers by the armed forces during the war in aircraft, and on shipboard in fixed installations as protection for cargo holds.

It is important for the consumer to recognize that regardless of salesmen's claims and

Portable carbon dioxide extinguisher

advertising, carbon dioxide extinguishers are NOT effective on ordinary combustible materials, as they do not have the wetting action of water, and have little of its cooling action. The successful hand use of this type extinguisher requires the *possibility of close approach to the fire* (within a maximum distance of five feet). Carbon dioxide extinction alone may not be sufficient in many types of hazards; e.g., fires in ovens, and gasoline fires where there is probability of re-ignition. As carbon dioxide is exceedingly quick in action, the danger of re-ignition is particularly great. It is also NOT suitable for fires in soot or charcoal because of the special re-ignition properties of these substances. Furniture and its padding and upholstery offer similar difficulties. Carbon dioxide extinguishers are at a definite disadvantage when used in the open air, where the gas is NOT CONFINED, and are also NOT suitable for fires likely to gain considerable headway before water can be used (if otherwise suitable and proper for the fire).

Carbon dioxide gas is somewhat poisonous, though thought not ordinarily to be a serious hazard to the operator, in view of the short period of exposure, due to the rapid discharge of the extinguisher. The snow from the discharge should not be permitted to remain in contact with the skin even for a moment.

This type of extinguisher needs no protection against freezing. The extinguisher should be weighed at least once a year or oftener to detect leakage or accidental loss of gas. As the carbon dioxide does not deteriorate with age, an annual recharge is unnecessary.

For home use, the carbon dioxide extinguisher should be considered to offer its greatest possibilities for usefulness in the kitchen.

The following carbon dioxide extinguishers, listed by manufacturers' names, are all recommended.

A. Recommended

American-LaFrance-Foamite Corp., Elmira, N. Y. ● *Alfite*: 2-, 4-, 7½-, 10-, 15-, and 20-lb. sizes; *Speedex*: 4-, 10-, 15-, and 20-lb. (Squeeze Type Valve).

C-O-Two Fire Equipment Co., Newark, N. J. ● *C-O-Two*: 2-, 4-, 7½-, 10-, 15-, and 20-lb. sizes; *Squeeze-Grip*: 2-, 4-, 15-, and 20-lb. sizes.

C-O-Two Fire Equipment of Canada, Ltd., 91 Don Roadway, Toronto, Ontario ● *Squeeze Grip*: 2-, 4-, 7½-, 10-, 15-, and 20-lb. sizes.

The Fyr-Fyter Co., 221 Crane Ave., Dayton, Ohio ● 2-, 4-, 7½-, 10-, 15-, and 20-lb. sizes.

Fyre-Freez, Inc., 675 Main St., Belleville, N.J. ● *Fyre-Freeze*: 2-, 4-, 7-, 10-, 15-, 20-lb. sizes.

The General Detroit Corp., 2272 E. Jefferson Ave., Detroit 7 ● *C-D Fog*

Models, self-closing lever and seated handwheel operated: 2-, 4-, 7½-, 10-, 15-, and 20-lb. sizes.

The General Pacific Corp., Los Angeles ● Self-closing lever, seated handwheel, operated: 2-, 4-, 7½-, 10-, 15-, and 20-lb. sizes.

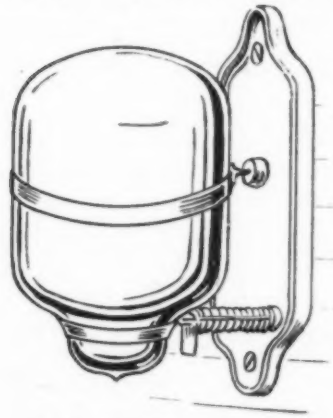
Kidde, Walter, & Co., Inc., 675 Main St., Belleville, N.J. and Walter Kidde & Co. of Canada Ltd., Montreal, Quebec ● *Kidde* Handwheel and Pistol Grip Models: 2-, 3⅝-, 4-, 5-, 7½-, 10-, 15-, and 20-lb. sizes.

LaFrance Fire Engine and Foamite, Ltd., Toronto, Ontario ● *Speedex*: 4-, 7½-, 10-, 15-, and 20-lb. sizes.

Randolph Laboratories, Inc., Chicago ● 2⅜- and 4-lb. sizes, Trigger Valve Type.

Carbon Tetrachloride "Grenades"

These devices are vastly inferior to the types of extinguishers recommended by Consumers' Research. They are characteristically small glass bottles or globes, usually filled with carbon tetrachloride and hermetically sealed. In one type, the carbon tetrachloride is colored red, to no useful purpose. Claims are made that the sealed bottles prevent evaporation and there-



Carbon tetrachloride "grenade"

fore are superior to recommended pump-type vaporizing-liquid extinguishers; this disregards the fact that the grenades must be thrown at the fire or dropped on it, and break and spill their contents all at once. Thus, with the grenade

device, complete vaporization is next to impossible. Control of a fire is possible, *but is decidedly dependent on the skill of the thrower*. Certain types of grenades sold as "automatic" are particularly dangerous, due to the fact that sales efforts are usually directed toward the installation of large numbers of the grenades with regular spacing intervals, and this array of gadgets is claimed to be equal in effectiveness to approved automatic sprinkler installations. Such arrangements of grenade-type extinguishers are never recognized for fire insurance rate credits, though customers are led to believe that they will receive such credits, and if the credit is not obtained, the insurance companies and rating bureaus are stated to be in league with each other against a "very effective" method of fire protection.

A considerable number of private tests[1] have been made on these devices with the following results:

1. Devices failed to break when thrown or when dropped automatically to the floor by the operation of a fusible link.

2. Thrown from the hand by inexperienced persons, the grenades seldom reached the seat of the fire. Claims are made for one type that the glass blown handhold improves control of the distribution of the liquid. Actual tests show that this feature adds little if anything to accuracy.

3. Had little or no effect on the fire. An apparent partial smothering occurred in some tests run on fires in small compartments, but repeating the tests WITHOUT the devices produced the same effect, due to exhaustion of the available oxygen by the fire.

4. Very small fires about 2 feet square or 4 square feet in area (flames not over 1 foot high) in oil soaked waste could sometimes be put out if fires were built on a concrete floor and grenades were carefully and accurately thrown so as to break and project vapor over the area of the fire. In most cases the fires were not completely extinguished and reignition occured.

Money spent on the grenade type extinguishers will be worse than wasted. Consumers are particularly warned against the extravagant claims made in advertisements and against giving weight to testimonials of persons asserted to be satisfied customers. There are serious limitations in the types of fires which can be fought successfully with *approved* vaporizing liquid (carbon tetrachloride) extinguishers; these apply in much greater measure to the grenade types.

C. Not Recommended

All bottle grenades; all extinguishers of a design or type that has not been plainly and officially approved, in writing, by *Underwriters' Laboratories* or *Factory Mutual Laboratories*.

Dry-Chemical Gas-Pressure Extinguishers

The portable dry-chemical extinguishers which eject the dry material by gas pressure are applicable to the same uses as carbon dioxide extinguishers, being especially effective in smothering flammable liquids "spillage" fires, safe to use on electrical fires, harmless to fabrics. Extinguishers of this type may be kept in freezing locations. There is the same danger of reignition, especially in fires in ordinary combustibles, because of a lack of mass cooling effect, as exists with the carbon dioxide extinguishers.

The extinguisher shell (20-lb. capacity) is of comparable size with the 2½ gallon soda-acid extinguishers. It contains patented specially treated bicarbonate of soda, and an inert compressed gas. Opening of a valve on the extinguisher releases the compressed gas and expels the powder in a cloud. The powder, which has been treated to flow readily and resist the absorption of moisture from the atmosphere, produces a smothering effect. Range of the extinguisher is short, about 10 to 20 feet, requiring a close approach to the fire.

Like the carbon dioxide extinguisher, this extinguisher should be reweighed at least once each year or oftener to detect accidental loss of the charge of inert gas.

The following dry-chemical, gas-pressure extinguishers, listed by manufacturers' names, are recommended.

A. Recommended

Ansul Chemical Co., Fire Extinguisher Div., Marinette, Wis. ● *Dugas* and *Ansul* Models: 15-, 20-, 25-, and 30-lb. sizes specially prepared dry chemical in powder form, and CO_2 cartridge.

Pressurelube, Inc., of New York, All-Out Fire Extinguisher Division, 609 W. 134 St., N.Y.C. ● *All-Out*, Model A-16: 15 lb. specially prepared dry chemical in powder form, and CO_2 cartridge.

[1]Government agencies in possession of the facts have never taken the obvious steps to restrain the promotion and sale of carbon tetrachloride grenades, the marketing of which is a gross injustice to the consumer. Simple publication of the facts (easily expressible in a single mimeographed page) by the government would save millions of dollars for American consumers and many lives that are lost through misplaced confidence in the claimed "automatic" effectiveness of grenades.

Foam Type Extinguishers

Foam is very effective for use on fires in open vessels or containers for most flammable liquids, primarily because of its smothering effect. Foam does not penetrate as well as other water solutions but is effective where it may be used to coat the burning surface or where the fire may be beaten out with the force of the stream. It will effectively control most fires in ordinary combustibles, and for a given extinguisher size, foam appliances have fire-extinguishing effect practically equivalent to the soda-acid type. Foam extinguishers are *not* to be used on live electrical equipment.

In operating, the extinguisher is inverted; this mixes a solution of aluminum sulphate with a solution of sodium bicarbonate and water to which a foaming agent, such as licorice extract, has been added. The mixing produces carbon dioxide gas, which furnishes the pressure to expel the contents as a foam; this foam has approximately seven times the volume of the original solution. The foam consists of minute, tough bubbles of liquid containing carbon dioxide.

Foam is especially effective for the protection of dip tanks of paint and certain other flammable liquids used in industrial processes and for gasoline and oil tanks. Its effectiveness as an all-round extinguisher is greatly overemphasized by salesmen; it is not reliable on light alcohols, acetates, acetones, ether, carbon bisulphide. Much depends on skill in use, and special instruction of the user in industrial applications is quite necessary. Heavily discount the "evidence" of demonstrations. The advantages of foam, except where there is a flammable liquid hazard, do not warrant its greater cost. The 2½ gallon size can be used by women, and is a good unit for kitchen fires involving grease, though food *will* be harmed by the use of foam (as it will not when carbon dioxide is used). The material damages fabrics somewhat. The manufacturer's own recharges must be used. Range 30 to 40 feet.

Large numbers of E.A.S. foam extinguishers with steel tanks were produced during the war and should not be purchased as equal to standard labeled extinguishers for permanent installation. (E.A.S. means *Emergency Alternate Specification;* a wartime second grade made necessary by shortages of certain metals and alloys.)

The following foam extinguishers, listed by manufacturers' names, are recommended.

A. Recommended

W. D. Allen Manufacturing Co., 566 Lake St., Chicago 6 ● *Allen Foam Type*: 2½-gal. size.

American-LaFrance-Foamite Corp., Elmira, N. Y. ● *Alfoam, Crusader, Foamex, Foamite*: 2½-gal. size.

Badger Fire Extinguisher Co., 626 Somerville Ave., Somerville, Mass. ● *Badger's Pony Foam*: 1¼ gal.; *Badger's*: 2½-gal. size.

Buffalo Fire Appliance Corp., 44 Central Ave., Buffalo ● *Buffalo*: 2½- and 10-gal. sizes.

Canadian Fire Hose Co., Ltd., Montreal, Quebec ● 2½-gal. size.

Columbia Fire Extinguisher Co., Inc., N. Y. C. ● 2½-gal. size.

Coulter Copper and Brass Co., Ltd., Toronto, Ontario ● 2½-gal. size.

Geo. W. Diener Manufacturing Co., 400 N. Monticello Ave., Chicago 24 ● 2½-gal. size.

Elkhart Brass Manufacturing Co., 1302 W. Beardsley Ave., Elkhart, Ind. ● *The Elkhart*: 2½-gal. size.

The Fyr-Fyter Co., 221 Crane Ave., Dayton, Ohio ● *Dayton* and *Foam Fyr-Fyter*: 2½-gal. size.

Garth Co., Montreal, Quebec ● 2½-gal. size.

General Detroit Corp., 2272 E. Jefferson Ave., Detroit 7 ● *Floafome* and *Hi-Test:* 2½-gal. size.

Globe Automatic Sprinkler Co., Inc., 2035 Washington Ave., Philadelphia ● *Globe*: 2½-gal. size.

Harker Manufacturing Co., 121 W. Third St., Cincinnati 2 ● *Queen*: 2½-gal. size.

Knight & Thomas, Inc., 624 Somerville Ave., Somerville, Mass. ● *Frothex*: 2½-gal. size.

LaFrance Fire Engine & Foamite, Ltd., Toronto, Ontario ● *Foamite* and *Crusader*: 2½-gal. size.

Miller-Peerless Manufacturing Co., 452 N. Sangamon St., Chicago 22 ● *Miller-Peerless*: 2½-gal. size.

National Foam System Inc., Packard Bldg., 15 and Chestnut Sts., Philadelphia ● *National*: 2½-gal. size.

Phister Manufacturing Co., 621 E. Pearl St., Cincinnati 2 ● *Phister*: 2½-gal. size.

Pyrene Manufacturing Co., 560 Belmont Ave., Newark 8, N.J. ● *Pyrene*: (formerly *Fastfome, Phomene, Vangarde*) 2½-gal. size.

Pyrene Manufacturing Co. of Canada, Ltd., 91 Don Roadway, Toronto, Ontario ● *Pyrene*: (formerly *Phomene*)

Randolph Laboratories, Inc., 8 E. Kinzie St., Chicago ● *Randolph*: 2½-gal. size.

Rockwood Sprinkler Co., 38 Harlow St., Worcester, Mass. ● *Rockwood*: 2½-gal. size.

A. C. Rowe & Son, Inc., N. Y. C. ● 2½-gal. size.

Stempel Fire Extinguisher Manufacturing Co., Jasper & York Sts., Philadelphia ● *Kontrol* and *Stempel*: 1½- and 2½-gal. sizes.

Off the Editor's Chest

(*Continued from page 2*)

was taken ostensibly for the purpose of saving grain for the starving people of Europe. The bread and rolls produced from the "emergency" flour were, to put it charitably, most unappetizing and were the subject of newspaper columnists' jokes and general complaint for several months. As a conservation measure the order was a total failure. What was gained in an increase in the amount of flour extracted from a given amount of grain, was lost in the reduced amount of by-products, which were normally used and necessary for animal feed. Housewives had to spend considerable time and undoubtedly wasted material in learning new methods of preparing foods with the new flour, for they faced considerable difficulty in turning out acceptable baked goods.

If all of these vexations had resulted in a contribution to the well-being or in saving of lives of less fortunate consumers overseas, there might have been some justification for the original order. The Secretary of Agriculture, however, blandly admitted that it did not save a *tremendous* amount of wheat, as he put it, and that no one in his department claimed that it did, but that it had served a "psychological purpose" by making the housewife constantly aware of the need for saving wheat products.

Consumers, it would appear, are children to be tricked into modifying their habits of consumption to further some particular policy of Washington bureaucrats who are nominally charged with the duty of service to *U. S. citizens*, and are certainly not commissioned by any *American* wish or vote to remake either world commerce or world policy. It will be interesting to see whether the change in position of political parties in the Congress brings about a re-formulation of foreign and domestic policies so that they will show greater concern for the welfare of consumers in this country. In this connection it is important to note that one of the proposals submitted by the delegate of the Soviet Union for consideration by the General Assembly of the United Nations, at Lake Success last November, called for adequate measures to be taken *in countries producing a food surplus to economize on domestic consumption with a view to increasing exports.*

U. S. consumers may be in favor of sharing their supplies with consumers abroad, but they should have an opportunity of examining such a course of action from various aspects and with respect to particular commodities in the white light of full and frank publicity and open diplomacy. Consumers should also be allowed to express themselves before they are committed by an un-elected Washington officialdom to some course gravely impairing their position (often by greatly increasing the prices of necessities). Such an opportunity should be afforded at the present time with respect to sugar and the extension of sugar controls. Certainly, consumers will express themselves as vigorously opposed to the waste, expense, economic dislocations, and inconveniences caused by the "psychological diplomacy" involved in the episode of the so-called emergency flour. In the months ahead they will need to do more than merely sit back and hope that if they just work hard and save their money, they will in time be able to buy customary supplies. They must keep a vigilant eye on their government's policies in giving away vital resources, restricting production, or restraining imports of food and other much desired consumer commodities.

★ ★ Corrections and Emendations to Consumers' Research Bulletins ★ ★

Small "Personal" Washer
Electro-Mite
Col. 111
ACB '46-'47

Delete statement ". . .slightly superior to Sears *Kenmore*," as this comment does not apply and the Sears *Kenmore* had in fact good washing ability, fairly close to that of the *Maytag* (the best washer in this respect hitherto tested).

Source of Supply for Building Materials
Col. 234
ACB '46-'47

The Pease Woodwork Co. has been unable to publish a catalog of building supplies and millwork this year, as they report that "their stocks have now reached an all time low," so that they have little to sell (no dimension lumber, siding, finish lumber, or flooring; practically no windows, frames, doors, trim, or mouldings).

Writing Ink
Page 17
August '44
Page 24
November '45

Delete Warren County Drug Store, Washington, New Jersey, which was named as a source for ingredients of government-formula ink.

Table Model Radio Receivers
Page 9, Col. 1
August '46

Change price of *Arvin*, Model 544A (Noblitt-Sparks Industries, Inc., Columbus, Ind.) from $15.65 to $19.40. The earlier price is no longer in effect.

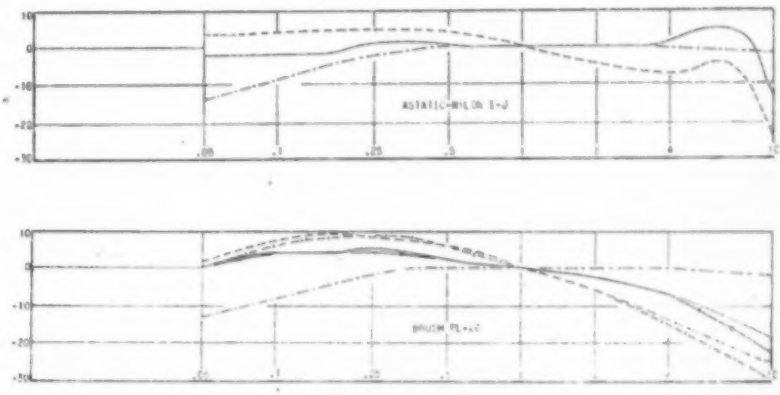
Phonograph Pickups

In the November 1946 issue of the BULLETIN, a number of phonograph pickups were rated, and the various factors determining the worth of a pickup were discussed. We are now able to report the results of two additional tests. In connection with the report on the *Brush PL-20* (crystal type, $45) reported on page 16 of the November 1946 BULLETIN, a representative of one large dealer, who had had long experience with pickups, assured CR that there must have been something abnormal about the pickup tested, if its performance was not better than was manifested in the characteristic curve which we reported (col. 2, p.16, Nov. '46 BUL.). Thinking this would be an excellent opportunity to test the degree to which this type of product shows uniformity from sample to sample, we obtained a new cartridge (crystal unit) for insertion in the same arm which carried the cartridge originally tested. The frequency response curves of the new unit turned out to be for all practical purposes identical with those given in the November BULLETIN. Such good "reproducibility" speaks well for the characteristics of this unit. However, on neither test did the performance meet the manufacturer's claim of a flat response within 1 decibel from 50 to 5000 cycles. No change in the *B-Intermediate* rating for the pickup is indicated.

After the pickup test had been under way for some time, the Astatic Corporation announced that a new type cartridge, known as the *Astatic Nylon 1-J*, in *Model 508* pickup arm, is to be used in future production to replace *Model FP-38* which we reported in our November BULLETIN. (It is quite likely, however, that the old model will continue to be available from certain dealers' stocks for some little time to come.) One of the new *Nylon 1-J* crystal units was obtained, installed in the *FP-38* arm, and the unit tested. For a discussion of the factors used in judging the pickups, as well as for test procedure, etc., the reader is referred to the November 1946 issue, p.11-17.

A. Recommended

Astatic Nylon, Model 1-J (Astatic Corp., Conneaut, Ohio) $8.90 (cartridge only). Crystal-type. Tested installed in *Model FP-38* arm. Frequency response, with equalizer specified by maker for *Model FP-38*, very good. Slight peak at 6000 cycles not considered detrimental. Unequalized response also very good (smooth and free from humps, also without any pronounced emphasis of any frequency region). Many listeners may prefer the response without the equalizer circuit, because of the reduced surface noise. Distortion low—maximum of 2% second harmonic at 150 cycles, and 2.5% third at 300 cycles. Higher harmonics negligible. Needle pressure 1.3 oz. This is about the average of the needle pressures of all the pickups tested (except two which had abnormally high needle pressures—3 and 3.5, respectively). Voltage output, unequalized—1.1 volts (should be high enough to perform satisfactorily with most phonograph amplifiers without requiring use of a preamplifier). Voltage output with equalizer—0.14 volts (some preamplification would be desirable in most cases when the equalizer is employed). Noise output (needle hiss heard in loud-speaker), low. Direct needle noise very low below 4000 cycles, noticeable above 4000 cycles but not objectionable. No instructions for use or circuit arrangements were furnished with this crystal unit.



Showing response of Astatic Nylon 1-J *cartridge in* FP-38 *pickup arm and the* Brush PL-20 *pickup at frequencies from 50 cycles to 10,000 cycles (units of horizontal scale are thousands of cycles per second; of the vertical scale, output of pickup in decibels—as voltage ratio). The dot-dash curve is the characteristic of the Columbia test record 10003-M. In the upper picture, the topmost dotted curve is that of the pickup without equalization, the solid curve after equalization. In the lower picture the two curves beginning above the others at the left are the response curves of the original and a second, later specimen, respectively, without equalizer; corresponding response curves for the pickup after equalization lie just below these two in the left-hand part of the graph, and just above in the right-hand part.*

Winter Motor Oils

THE following listings of motor oils are based on results of technical tests made by a Western state government's laboratories. Actual ratings are by Consumers' Research and are determined by viscosity index (a high viscosity index is a very desirable characteristic in a crankcase oil), carbon residue, and pour point, which is a characteristic of particular importance in judging quality of winter motor oils used in a severe climate. Oils which were misbranded as to SAE number were penalized in the ratings on account of that error, since it is important that the motorist should receive oil of the viscosity he asks for.

Standard type of viscosimeter with constant temperature control used for determining viscosity of motor oils at stated temperatures.

★

Brand	*Manufacturer or Distributor*	*SAE 10W*	*SAE 10*	*SAE 20W*	*SAE 20*
Ace High	Midwest Oil Co.	B[1]	B[2]	—	C[2,3]
Avio	Midwest Oil Co.	—	B[2]	—	B[2]
Champlin Hi-Vi	Champlin Refg. Co.	—	—	—	B[2]
Cities Service	Cities Service Oil Co.	—	C[3,4]	—	C[3,4]
Conoco	Continental Oil Co.	A	A	A	A
Cross Country	Sears, Roebuck & Co.	B[1]	—	B[2]	—
DS	Direct Service Oil Co.	—	B[2]	B[4]	B[4]
DS Super	Direct Service Oil Co.	—	—	B[2]	—
DX	Mid-Continent Petroleum Co.	A	A	A	A
Diamond	Mid-Continent Petroleum Co.	—	B[4]	—	C[3,4]
Gambles Penna	Gamble Stores	—	B[2]	—	B[2]
Golden Shell	Shell Oil Co.	A	A	A	A
Havoline	The Texas Co.	A	—	A	A
Hyvis	Hyvis Oils, Inc.	—	—	A	A
Iso-Vis	Standard Oil Co.	A	—	A	—
Kendall	Kendall Refg. Co.	B[2]	B[2]	B[2]	B[2]
Koolmotor	Cities Service Oil Co.	—	B[2]	—	C[2,3]
Lubrite	Socony Vac. Oil Co.	—	B[4]	—	—
Mobiloil	Socony Vac. Oil Co.	A	A	A	A
Moco	Midwest Oil Co.	—	C[3,4]	—	C[3,4]
Norolene	Northland Oil Co.	C[4]	—	C[1,4]	—
Northland	Northland Oil Co.	A	—	—	—
Oval E	Carter Oil Co.	A	—	A	—
Oval E HD	Carter Oil Co.	B[2]	—	—	—
Oval E Extra	Carter Oil Co.	B[2]	—	—	—
Pennzoil	The Pennzoil Co.	B[1]	—	B[2]	B[2]
Puritan	Perfect Oil Co.	—	—	—	C[3,4]
Purol	Pure Oil Co.	—	—	—	C[3,4]

Winter Motor Oils

Continuation of Table

Brand	*Manufacturer or Distributor*	*SAE 10W*	*SAE 10*	*SAE 20W*	*SAE 20*
Quaker State	Quaker State Oil Refining Co.	B[3]	—	—	C[2,3]
RPM	The California Co.	A	—	—	B[3]
Ring Free	Macmillan Pet. Corp.	—	B[4]	—	B[4]
Shell X-100	Shell Oil Co.	A	A	A	A
Silver Shell	Shell Oil Co.	—	B[4]	—	B[4]
Skelco	Skelly Oil Co.	B[4]	—	—	—
Tagolene	Skelly Oil Co.	—	B[4]	—	—
Texaco	The Texas Co.	—	—	A	A
Trojan	Cities Service Oil Co.	—	C[3,4]	—	C[3,4]
Unique	Phillips Pet. Co.	—	C[3,4]	—	C[3,4]
Valvoline	Freedom-Valvoline Oil Co.	—	A	—	B[3]
Velvet	Yale Oil Co.	C[1,4]	—	—	—
Wards Supreme	Montgomery Ward & Co.	A	—	B[3]	—
Winterflow	Bodie-Hoover Pet. Corp.	C[1,3]	—	—	—
Wolf's Head	Wolf Head Oil Refg. Co.	—	—	—	B[3]
Zerolene	The California Co.	—	B[4]	—	—

[1] Misbranded as to SAE number.
[2] Carbon residue too high.
[3] Pour point high.
[4] Viscosity index, low.
[5] Considerable corrosion, might contain additives.

★ *Radio-Phonograph Combination* ★

B. Intermediate

Sparton, Model 7BW46PA (Sparks Withington Co., Jackson, Mich.) $141.05, Zone 1; $148.10, Zone 2. 7-tube superheterodyne with a tuned r.f. stage (desirable). For use on alternating current only. (A-c receivers are more desirable than ac-dc.) Well made cabinet of "period" design; record changer well supported in drawer. Was equipped for short-wave reception, and had built-in antennas. Quality of parts and workmanship both good except for loud-speaker and output transformer. Ease of servicing, good. Sensitivity on both broadcast and short-wave bands, very good. Selectivity, satisfactory; no spurious responses noted during test. Audio frequency response (electrical, not including speaker) 70 to 4500 cycles, moderately good. Acoustic quality on listening test judged only fair, a result which was considered to be due probably to the type of speaker and output transformer used. (Speakers and output transformers of poor grade are quite commonly used on radio receivers and radio-phonographs, even on some which are quite high priced.) Approximate acoustical range (sounds heard from loud-speaker), 100 to 3500 cycles (not good). Audio output at 10% distortion, 1 watt, much too low for console model receiver (10 watts is considered desirable for high-fidelity reproduction). Hum level desirably low. Set was furnished with *Seeburg* automatic record changer of good construction, having a pickup equipped with "precious metal" needle. Needle pressure 1.25 oz. (about the average of the needle pressure of all the pickups tested, except two—see page 23). Electrical safety adequate—no leakage current found. Set bore Underwriters' Laboratories' label. 2

Two Sound Suggestions to Manufacturers

A subscriber viewing the Saturday Evening Post advertisement of the new *Cadillacs* and *Chryslers* writes:

> A street level view of the new radiator fronts does not interest me at all. Have the car makers no better selling points?

Another well-directed suggestion that must have occurred to some hundreds of thousands of householders:

> Tell the refrigerator makers to put a flat top on their new models so they may be of more use in the kitchen.

A New Radio Receiver for the Deafened—

Multi-Purpose Emerson, Model 1002

MANY years ago the writer, who has lost most of his hearing, had a head-set and a more or less independent rheostat attached to his radio, so that he could tune in a program as loudly as he desired without disturbing everybody else within a wide radius.

The experiment was not a success. When the head-set was turned on, the loud-speaker did not function well, and incessant fiddling with two sets of controls was necessary; moreover, the weight of the head-set and its pressure on both ears became uncomfortable after a half hour or so. The result was that he gave up using the gadget, and, like most deafened people, preferred to listen to the conventional loud-speaker, through his electrical hearing aid.

From a recent newspaper advertisement of the *Emerson Multi-Purpose.*

Emerson has just brought out a "*Multi-Purpose*" radio, Model 1002, which shows how much better engineers can deal with the same idea. Instead of the cumbersome head-set, there is a miniature "ear receiver," weighing less than a half ounce. It clips to the specially molded ear-pieces which most deafened persons already possess; or ready-made ear-pieces, to fit either ear, come in 12 different sizes at $1.75 each. There are two volume controls, and they are independent: the loud-speaker and the ear receiver can be used simultaneously, or either can be silenced, and the adjustment of one does not seem to affect the other. An additional attachment sold as an accessory is an "under-pillow" receiver which may be plugged into the receptacle at the rear of the set; it provides for private listening to programs without any need to disturb others in the same room, or even in the same bed.

The possibilities of the "*Multi-Purpose*" radio are interesting. When a deafened person listens to a radio through an electrical hearing aid, all sounds are magnified, including those of street noises, elevators, other radios in the neighborhood, and the violin exercises perpetrated by the child next door. The "*Multi-Purpose*" cuts out all sound except that actually wanted, and it does so without draining energy from one's hearing-aid batteries. If the deafened person owns no hearing aid, it makes it possible for him to enjoy the radio alone or with the rest of the family—and the ear-drum exercise thus obtained has a recognized therapeutic value.

The writer of this note, as well as other deafened persons who tried the "*Multi-Purpose*," liked it, and considered the quality of the sound produced highly satisfactory.

The uses of the device for the normal individual, whose hearing is unimpaired, are likewise interesting. The businessman who wishes to hear a daytime program which is important to him can do so without other persons in the same office hearing a sound, provided only that he plugs in the ear receiver. In hospitals, where sound from one room will disturb sick people in others, a patient may listen to any program he wishes without causing annoyance; even in a ward the occupant of a bed may listen while his neighbors sleep. In the home, the mother or the nurse can tune in an evening's entertainment without waking the child; conversely the child can listen to a program which its elders may prefer to miss, without bothering them.

The "*Multi-Purpose*" receiver uses six tubes, including the rectifier tube. While the ear receiver is of the magnetic type, the circuit permits use of a crystal-type earphone. The price is $45.

* * *

The foregoing study does not include a test of the radio as such, but only its performance from the standpoint of its use by a deafened person.

Ratings of Motion Pictures

THIS section aims to give critical consumers a digest of opinion from a wide range of motion picture reviews, including the motion picture trade press, leading newspapers and magazines—some 19 different periodicals in all. The motion picture ratings which follow thus do not represent the judgment of a single person, but are based on an analysis of critics' reviews.

The sources of the reviews are:

Box Office, Charm, Chicago Daily Tribune, The Christian Century, Cue, Daily News (N Y), *The Exhibitor, Harrison's Reports, Motion Picture Herald, National Legion of Decency List, Newsweek, New York Herald Tribune, New York Times, Parents' Magazine, Release of the D.A.R. Preview Committee, Successful Farming, Time, Variety* (weekly), and *Unbiased Opinions of Current Motion Pictures* which includes reviews by the General Federation of Women's Clubs the American Legion Auxiliary, National Film Music Council, and others.

The figures preceding the title of the picture indicate the number of critics who have been judged to rate the film A (recommended), B (intermediate), and C (not recommended).

Audience suitability is indicated by "A" for adults, "Y" for young people (14-18), and "C" for children, at the end of each line.

Descriptive abbreviations are as follows:

adv—adventure
biog—biography
c—in color (Technicolor, Cinecolor, or Magnacolor)
car—cartoon
com—comedy
cri—crime and capture of criminals
doc—documentary
dr—drama
fan—fantasy
hist—founded on historical incident
mel—melodrama
mus—musical
mys—mystery
nov—dramatization of a novel
rom—romance
soc—social-problem drama
trav—travelogue
war—dealing with the lives of people in wartime
wes—western

A	B	C		
—	—	4	Accomplice	*cri-mel A*
—	2	2	Alias Billy the Kid	*wes AYC*
1	8	8	Angel on My Shoulder	*fan A*
9	9	—	Anna and the King of Siam	*dr A*
—	4	4	Avalanche	*cri-mel AYC*
—	8	8	Bachelor's Daughters, The	*mus-com A*
—	4	5	Bamboo Blonde, The	*mus-war-rom A*
—	5	5	Bedlam	*dr A*
—	4	4	Below the Deadline	*mel A*
5	1	—	Best Years of Our Lives, The	*war-dr A*
—	2	2	Beware	*mus-com A*
1	8	8	Big Sleep, The	*cri-mel A*
—	8	7	Black Angel	*mus-mel A*
—	7	4	Black Beauty	*dr YC*
—	1	5	Blonde for a Day	*mys A*
—	4	4	Blondie Knows Best	*com AYC*
—	2	1	Blue Sierra	*dr-c AYC*
1	13	2	Blue Skies	*mus-biog-c A*
—	—	3	Boston Blackie and the Law	*cri-mel AY*
—	3	3	Bowery Bombshell	*mel AYC*
1	7	6	Boys' Ranch	*dr AYC*
4	13	—	Brief Encounter	*dr A*
—	2	2	Bringing Up Father	*com AY*
—	1	4	Brute Man, The	*cri-mel A*
4	11	3	Caesar and Cleopatra	*dr-c A*
2	10	3	Canyon Passage	*wes-c A*
1	10	5	Centennial Summer	*mus-com-c A*
—	5	5	Chase, The	*cri-mel A*
—	3	3	Child of Divorce	*dr A*
2	9	4	Claudia and David	*com AYC*
1	13	3	Cloak and Dagger	*war-mel A*
3	10	2	Cluny Brown	*com A*
—	8	6	Cockeyed Miracle, The	*fan A*
—	3	3	Colorado Serenade	*mus-wes-c AYC*
—	3	—	Conquest of Cheyenne	*wes AYC*
2	7	1	Courage of Lassie	*dr-c AYC*
—	2	2	Cowboy Blues	*mus-wes AYC*
—	9	5	Crack-Up	*cri-mel A*
—	—	5	Crime Doctor's Manhunt	*mys-mel A*
—	1	2	Crime of the Century	*cri-mel A*
—	6	3	Criminal Court	*mus-cri-dr A*
—	1	4	Cross My Heart	*mus-cri-mel A*
—	2	7	Cuban Pete	*mus-com AYC*
—	4	5	Danger Woman	*mel A*
—	2	5	Dangerous Business	*cri-mel AYC*
—	—	4	Dangerous Money	*mys-mel AYC*
—	3	5	Dark Alibi	*mys-mel AYC*
1	10	4	Dark Corner, The	*cri-mel A*
—	5	5	Dark Horse, The	*com AYC*
1	10	3	Dark Mirror, The	*mys-mel A*
—	11	4	Dead of Night	*mys-mel A*
—	1	8	Deadline for Murder	*cri-mel A*
—	2	1	Death Valley	*mel-c AYC*
—	7	5	Deception	*dr A*
—	3	5	Decoy	*mel A*
—	4	2	Desert Horseman, The	*mus-wes AYC*
—	2	6	Devil's Mask, The	*mys-mel AY*
—	5	1	Devil's Playground, The	*wes AYC*
—	4	1	Dick Tracy versus Cueball	*mel A*
—	10	3	Do You Love Me?	*mus-com-c AY*
—	3	7	Don't Gamble with Strangers	*mys-mel A*
—	4	5	Down Missouri Way	*mus-com AYC*
—	7	4	Dressed to Kill	*mys-mel AYC*
—	2	1	Driftin' River	*mus-wes AYC*
—	7	3	Earl Carroll Sketchbook	*mus-com A*
1	11	4	Easy to Wed	*mus-com-c A*
—	3	—	Extenuating Circumstances	*cri-com A*
—	5	3	Faithful in My Fashion	*rom A*
—	3	1	Fool's Gold	*wes AYC*
—	2	4	Freddy Steps Out	*mus-com AY*
—	3	5	French Key, The	*mys-mel A*
—	1	2	Frenzy	*mys-mel A*
—	7	2	G.I. War Brides	*dr A*
—	5	1	Gallant Bess	*war-dr-c AYC*
—	3	10	Gallant Journey	*dr A*
—	4	2	Galloping Thunder	*mus-wes A*
—	1	3	Gas House Kids	*mel AYC*
—	5	2	Gay Blades	*com AYC*
—	2	2	Gay Cavalier, The	*mus-wes AYC*
—	1	3	Gay Intruders, The	*war-nov AYC*
—	—	7	Genius at Work	*mys-com A*
—	6	1	Gentleman Joe Palooka	*com A*
—	—	4	Gentlemen with Guns	*wes AYC*
—	1	4	Ghost of Hidden Valley	*wes AYC*
—	2	7	Glass Alibi, The	*cri-mel A*
—	2	2	God's Country	*mel-c AYC*
—	4	4	Great Day	*war-dr AYC*
—	3	1	Gunning for Vengeance	*wes AYC*
—	2	2	Haunted Mine, The	*wes AYC*
—	1	4	Heading West	*wes AYC*
—	2	3	Hello Moscow	*mus-com A*
12	2	2	Henry V	*dr-c A*
—	7	2	Her Adventurous Night	*com A*
—	6	3	Her Sister's Secret	*war-dr A*
—	2	5	High School Hero	*mus-com AY*
4	10	3	Holiday in Mexico	*mus-com-c AYC*
—	4	—	Home in Oklahoma	*mus-wes AYC*
—	7	5	Home Sweet Homicide	*mys-mel A*
2	1	—	Hymn of the Nations	*mus-doc AYC*

A	B	C		
—	3	1	I Know Where I'm Going	*dr A*
—	4	8	If I'm Lucky	*mus-com A*
—	2	4	In Fast Company	*mel AYC*
—	—	6	Inner Circle, The	*cri-mel A*
—	5	6	Inside Job	*cri-mel A*
—	—	6	Invisible Informer	*cri-mel A*
—	10	2	It Shouldn't Happen to a Dog	*com AYC*
—	2	7	It's Great to be Young	*mus-com AY*
2	5	6	I've Always Loved You	*mus-dr-c A*
—	4	10	Janie Gets Married	*com AY*
—	6	3	Johnny Frenchman	*war-dr A*
3	6	1	Jolson Story, The	*mus-biog-c AY*
2	13	1	Killers, The	*cri-mel A*
—	9	5	Lady Luck	*com A*
—	4	—	Lady Surrenders, A	*rom A*
—	—	3	Landrush	*mus-wes AYC*
—	1	6	Larceny in Her Heart	*mys-mel AYC*
—	2	6	Last Crooked Mile, The	*cri-mel A*
—	2	4	Little Iodine	*com A*
—	4	3	Little Miss Big	*dr AYC*
1	4	5	Little Mr. Jim	*dr A*
—	5	8	Lover Come Back	*com A*
—	4	—	Magnificent Doll, The	*hist-dr A*
1	4	—	Man from Rainbow Valley	*mus-wes-c AYC*
—	—	3	Man from Morocco, The	*mel A*
—	6	1	Man Who Dared, The	*cri-mel A*
3	9	1	Margie	*com-c AY*
—	4	—	Mighty McGurk, The	*dr AYC*
—	—	3	Missing Lady, The	*mys-mel A*
1	12	2	Monsieur Beaucaire	*mus-com A*
—	5	12	Mr. Ace	*dr A*
—	1	2	My Brother Talks to Horses	*com AYC*
1	7	1	My Darling Clementine	*wes AYC*
2	4	1	My Pal Trigger	*mus-wes AYC*
—	6	4	Mysterious Intruder	*cri-mel A*
—	3	—	Navajo Trail, The	*wes AYC*
—	6	2	Never Say Goodbye	*com A*
2	13	2	Night and Day	*mus-biog-c A*
—	1	4	Night Train to Memphis	*mus-mel A*
—	8	7	No Leave, No Love	*mus-com AY*
—	4	6	Nobody Lives Forever	*cri-mel A*
1	3	7	Nocturne	*mus-mel AY*
8	10	—	Notorious	*mys-mel A*
1	7	4	Notorious Gentleman	*war-dr A*
—	11	4	O.S.S.	*war-mel A*
—	5	9	Of Human Bondage	*dr A*
—	3	4	One Exciting Week	*mus-com A*
—	5	7	One More Tomorrow	*dr A*
—	1	3	Overland Riders	*wes AYC*
—	1	2	Paris Frills	*dr A*
—	3	5	Passkey to Danger	*cri-mel A*
—	3	3	Perfect Marriage, The	*com A*
—	3	5	Personality Kid	*com AYC*
—	—	5	Phantom Thief, The	*cri-mel A*
—	5	3	Plainsman and the Lady, The	*wes AY*
—	3	4	Postmaster's Daughter, The	*nov A*
—	—	5	Prairie Badmen	*mus-wes AYC*
—	1	2	Prairie Rustlers	*wes AYC*
—	4	5	Queen of Burlesque	*mus-mel A*
2	4	—	Raider, The	*war-doc AY*
—	6	1	Rainbow Over Texas	*mus-wes AYC*
1	2	1	Razor's Edge, The	*dr A*
—	5	3	Rendezvous 24	*mys-mel AYC*
—	9	1	Rendezvous with Annie	*war-com A*
—	10	3	Renegades	*mel-c A*
—	2	4	Resistance	*war-mel A*
—	4	3	Return of Rusty	*mel AYC*
—	6	1	Roll On Texas Moon	*mus-wes AYC*
—	2	1	Rolling Home	*dr AYC*
—	8	4	Runaround, The	*com AY*
—	4	1	Rustler's Roundup	*wes AYC*
—	5	10	Scandal in Paris, A	*cri-mel A*
1	7	9	Searching Wind, The	*war-dr A*
—	—	3	Secret of the Whistler	*mys A*
—	1	4	Secrets of a Sorority Girl	*cri-dr A*
—	5	4	Shadow of a Woman	*cri-mys A*
—	2	3	Shadowed	*mys-mel A*
—	—	3	Shadows on the Range	*wes AYC*
—	1	4	Shadows Over Chinatown	*mys-mel AYC*
—	11	3	She Wrote the Book	*com A*
—	3	—	Sheriff of Redwood Valley	*wes AYC*
—	7	—	Show-Off, The	*com AYC*
—	—	7	Sing While You Dance	*mus-com AYC*
—	—	3	Singin' in the Corn	*mus-com AYC*
—	1	2	Singing on the Trail	*mus-wes AYC*
—	4	3	Sirocco	*dr A*
4	7	2	Sister Kenny	*biog AYC*
—	2	5	Slightly Scandalous	*mus-com AY*
3	12	1	Smoky	*mus-dr-c AYC*
—	3	4	So Dark the Night	*mel A*
—	11	2	Somewhere in the Night	*cri-mel A*
—	1	3	Song of Mexico	*mus-dr A*
—	1	3	South of Monterey	*mus-wes AYC*
—	6	—	Song of the South	*car-c AYC*
1	3	9	Specter of the Rose	*dr A*
—	1	4	Spook Busters	*com AY*
—	3	5	Step by Step	*war-mel A*
—	11	5	Stolen Life, A	*dr A*
—	10	3	Stormy Waters	*dr A*
—	2	8	Strange Confession	*cri-mys A*
—	—	5	Strange Holiday	*mel A*
—	—	6	Strange Journey	*mel A*
—	3	3	Strange Mr. Gregory, The	*cri-mel A*
—	3	7	Strange Triangle	*cri-mel A*
1	2	3	Strange Woman, The	*dr A*
4	9	4	Stranger, The	*war-mel A*
—	7	—	Sun Valley Cyclone	*wes AYC*
—	4	6	Sunset Pass	*wes AYC*
—	2	1	Susie Steps Out	*mus-com A*
—	2	7	Swamp Fire	*mel AYC*
—	—	4	Temptation	*cri-mel A*
—	—	4	Terrors on Horseback	*wes AYC*
—	1	2	That Brennan Girl	*mel A*
—	2	2	That Texas Jamboree	*mus-mel AYC*
—	10	9	They Were Sisters	*dr A*
—	—	—	Thieves' Holiday (See Scandal in Paris, A)	
—	14	1	Three Little Girls in Blue	*mus-com-c AY*
1	7	3	Three Wise Fools	*com AYC*
—	7	7	Thrill of Brazil, The	*mus-com A*
3	1	—	Till the Clouds Roll By	*mus-biog-c AY*
2	8	6	Till the End of Time	*dr A*
1	7	1	Time of Their Lives, The	*com AYC*
—	1	5	Traffic in Crime	*mel A*
—	—	4	Tumbleweed Trail	*mus-wes AYC*
—	3	1	Turning Point, The	*war-dr A*
—	9	3	Two Guys from Milwaukee	*com AYC*
—	4	5	Two Smart People	*cri-mel A*
1	9	4	Two Years Before the Mast	*adv AYC*
—	3	2	Two-Fisted Stranger	*wes AYC*
—	3	2	Under Arizona Skies	*mus-wes AYC*
—	4	1	Under Nevada Skies	*mus-wes AYC*
—	3	4	Undercover Woman, The	*cri-mel A*
2	3	2	Undercurrent	*mel A*
—	2	6	Unknown, The	*mys A*
—	3	5	Vacation in Reno	*com A*
—	1	9	Valley of the Zombies	*cri-mel A*
—	5	—	Verdict, The	*cri-mel A*
—	9	1	Walls Came Tumbling Down, The	*mys-mel AY*
3	5	1	Welldigger's Daughter, The	*dr A*
—	—	5	West of the Alamo	*mus-wes AYC*
—	6	5	White Tie and Tails	*com A*
—	3	—	Wicked Lady, The	*dr A*
—	—	5	Wife Wanted	*cri-mel A*
—	1	7	Wild Beauty	*dr AYC*
—	9	3	Without Reservations	*com A*
—	2	1	Years Between, The	*nov A*
—	—	3	Youth Aflame	*dr A*

(Continued from page 4)

price control the situation is expected to improve somewhat. Those who were unable to get paint last fall may console themselves with the prospect of having better quality paint – at a higher price – this spring.

* * *

MORE RUMORS ABOUT PRODUCTION OF FOREIGN CAMERAS: The American occupation authorities have permitted Leitz to start manufacture, and Leicas are now said to be in production at the rate of about 900 per month. A proportion of these will come to the United States and be sold here....The British are said to be permitting production of the high-priced Rolleiflexes by Franke & Heidecke. No doubt these cameras will come to the U.S., as the Automatic Rolleiflex is selling in American PX's in Germany....The Zeiss works, of which only a few buildings were badly damaged, were rebuilt and are ready to start volume production of cameras and lenses....Some newspapers and photo-service professionals are using Luftwaffe 9 x 12 cm. cameras with Xenon f:2 lens and added focusing

LAST CALL

for

the 1946-47

Annual Cumulative Bulletin!

THIS is your last chance to get a copy of the 1946-47 ANNUAL CUMULATIVE BULLETIN and we mean *positively*. We thought we had ordered enough copies this year to last until May, but at the rate they are going at the present time we'll be lucky if we have enough to last the month out. Don't say that we didn't warn you!

N.B. This issue is not included in a subscription, but is available on special order and solely for the use of an individual subscriber and that of his immediate family.

Convenient Order Blank on Next Page!

JUST by way of reminder, in case you overlooked previous announcements: the Annual Cumulative Bulletin summarizes a wide range of CR's previous findings and presents new material in certain fields. The information is conveniently grouped under the following headings: Foods and Nutrition; Household Appliances, Equipment and Supplies; Textiles and Clothing; Housing, Home Maintenance and Repair; Heating Equipment and Fuel; Cosmetics and Toilet Supplies; Automobiles, Care, Accessories, Supplies; Photographic Equipment and Supplies; Radio, Phonograph Players, and Phonograph Records; Medicine and Hygiene; Watches and Clocks; Writing Materials.

device....The Voigtlander Company, owned before the war by Gevaert, is said to be in operation. New Swiss miniature cameras are soon to be available here.... A French imitation of the Leica camera was offered at $250 under the name Foca, and it is possible that it may be made to sell in this country for about $75. A number of French hand cameras are being offered by a New York dealer at prices that seem to be about one-third or more above pre-war prices for similar cameras....Three Japanese cameras were seen on Broadway, in New York.

* * *

NEW PRODUCTS: Bruce Floor Cleaner (E. L. Bruce Co., Memphis, Tenn.) is an amber-colored thin liquid asserted to be "The new scrubless way to dry clean wood floors and linoleum. Its wax base restores the natural beauty of finishes." This product on analysis was found to be 96-1/2% Stoddard Solvent (a high flash point petroleum naphtha of a kind much used for dry cleaning), 2% carnauba wax (widely used in floor waxes), and 1.4% of zinc stearate. The general idea of the product seems to be that the Stoddard Solvent removes some of the wax and oils from the floor, and the zinc stearate and carnauba wax carried in solution in the cleaning liquid serve to deposit a very thin new wax coating. (The zinc stearate possibly acts as a plasticizing agent, so that the carnauba wax is spread as a thin film rather than as a white powdery deposit.) The percentage of wax in the regular volatile solvent floor wax is normally several times as high as that found in Bruce Floor Cleaner, so that there might be some doubt as to the effectiveness of the Bruce cleaner in restoring, to any significant extent, the wax coating removed in the cleaning process.

* * *

CORRECTION PLEASE: The statement in the second item of the October Consumers' Observation Post to the effect that the bodies of the new Plymouth and also Ford cars appear to be made of thinner sheets of steel than was the case with pre-war cars of the same make has been found to be incorrect. The information came from a source that appeared to be fully reliable, and it could not be checked before the time of going to press because of the unavailability of new cars of the makes in question, for examination. According to a recent check (without cutting a panel to make thickness measurements, a step which is not practicable at this time), there appeared to be no significant differences in the gauges of the steel used in either car as compared with pre-war models, and in the case of one of the cars at least, the Ford, a representative of the manufacturer has furnished current and pre-war specification data indicating no change in the gauge of door panel sheets.

Consumers' Research, Inc.
Washington, N. J.

Please enter my order as checked. It is understood that my handling of any CR material which is marked "The analyses of commodities, products, or merchandise appearing in this issue of the Consumers' Research Bulletin are for the sole information of Consumers' Research subscribers" will be in accordance with that direction.

NAME_____
(PLEASE SIGN IN LONGHAND)

STREET_____

CITY & ZONE_____ STATE_____

BUSINESS OR PROFESSION_____

CR-1-47

Please check:

☐ I enclose $1.00 (Canada & foreign, $1.25) for a copy of the 1946-47 Annual Cumulative Bulletin. Since I am a subscriber to Consumers' Research Bulletin (12 issues), I am entitled to the special rate.

☐ I enclose $4 (Canada & foreign, $4.50) for one year's subscription to Consumers' Research Bulletin monthly (12 issues) AND the 1946-47 Annual Cumulative Bulletin.

☐ New Subscription ☐ Renewal

☐ I enclose $3 (Canada & foreign, $3.50) for one year's subscription to Consumers' Research Bulletin monthly (12 issues).

☐ New Subscription ☐ Renewal

☐ I enclose $2.50 (Canada & foreign, $2.75) for subscription to 1946-47 Annual Cumulative Bulletin alone.

PHONOGRAPH RECORDS

By Walter F. Grueninger

Please Note: Prices quoted do not include taxes. In the ratings AA indicates highly recommended; A, recommended; B, intermediate; C, not recommended.

CONCERTO

Khachaturian: *Concerto.* Moura Lympany (piano) and the London Symphony Orchestra under Fistoulari. 8 sides, Decca Set EDA 3. $9. First recording of this rather popular modern concerto, Oriental in feeling. Excellent performance. Initial domestic Decca release of an English Decca pressing in an American album. Advertised as "Full Frequency Range Recording," presumably, without dynamic limitation. New York shops have been using sample discs from this series to demonstrate high fidelity equipment. I find the set wide-ranged in frequencies and in dynamics, very smooth from lowest bass to highest treble. Commendable balance. Surface noise, about equal to domestic pressings. This is the most obvious deficiency when the set is compared with an electrical transcription recorded and manufactured for radio use, pressed on vinylite. Overall, a superior set ushers in a very welcome series.
Interpretation AA
Fidelity of Recording AA

VOCAL

Heritage Series. Under this title Victor has released five single discs, re-issues on vinylite of masters recorded from 1907 to 1920, out of the catalogue for years. The advantage over the original pressings is the almost total absence of surface noise, with the exception of Tetrazzini's disc recorded in London in 1908. Now, the voice comes through clearly though the accompanying orchestra is feeble. (Evidence continues to pile up in support of my warning of October 1945 that vinylite records wear out rather quickly unless played with a light, compliant pickup.)

Frances Alda's 1910 performance of *Salce, Salce* and *Ave Maria* (Otello) (Victor 15-1000) I consider the least impressive disc. Tetrazzini's *Voi Che Sapete* is not notable but her *Titania* aria is remarkable (Victor 15-1001). Maria Anconi is superb in *Dio Possente* and *Eri Tu*, both recorded in 1907 (Victor 15-0002).

Marcel Journet's 1910 *Piff Paff* and *Vulcan's Song* (Victor 15-1003) are outstanding examples of polished French singing. Most likely to please, is Caruso's 1920 *Ah Fuyez* and the *La Juive* aria (Victor 15-1004).

Each disc, $3.50.
Interpretation A
Fidelity of Recording C

Hindemith: *Six Chansons.* Victor Chorale under Shaw. 2 sides, Victor 11-8868. $1. Unimportant music. Though sung in English, the words are unintelligible.
Interpretation B
Fidelity of Recording B

CHAMBER

Beethoven: *Quintet in C Major* (Op. 29). Budapest String Quartet with Milton Katims (viola). 8 sides, Columbia Set 623. $4.85. The work falls short of Beethoven's best chamber music. Superbly played. Transparent recording with wide range. Supersedes Lener's Columbia Set 294, beautifully played and moderately well recorded within a narrow range.
Interpretation AA
Fidelity of Recording AA

LIGHT, FOLK, AND MISCELLANEOUS

Arlen-Mercer: *St. Louis Woman.* Original Broadway Cast. 10 sides, Capitol Set CE28. $4.25. Principal numbers from the Broadway musical play, featuring syncopated songs befitting action in the 1898 Negro section of St. Louis. The performers are masters of the musical style, but the quality of their voices does not always meet the challenge. Excellent recording.
Interpretation A
Fidelity of Recording AA

Irving Berlin Melodies. Wayne King and His Orchestra. 8 sides, Victor Set P 159. $2.75. "All Alone," "Always," "Alexander's Ragtime Band," "Say it With Music" and other favorites. No hocus pocus of Met stars stooping to Berlin, but Earl Randall and Nancy Evans (Broadway vocalists) and a small "sweet" orchestra featuring strings do things satisfactorily, if not brilliantly.
Interpretation A
Fidelity of Recording AA

Joe Sullivan Jazz Quartet with Sidney Bechet, George Wettling, Pops Foster. 6 sides, Disc Set 701. $3.75. Snappy specialty numbers performed by well-known jazz men. Three sides of piano solos, three of the quartet. Excellent balance and overall recording.
Interpretation AA
Fidelity of Recording AA

Operetta Favorites. Jeanette MacDonald (soprano). 6 sides, Victor Set 1071. $3. Uneven performance, with fast numbers coming off best. Lifeless chorus struggles through sophisticated arrangements in some numbers. Recording of *voices* satisfactory excepting for backing away, in effect, for high, loud notes but the *orchestra* is barely audible. Included are "Romany Life," "Sweetheart Waltz," "Smoke Gets in Your Eyes," "Donkey Serenade," etc.
Interpretation A
Fidelity of Recording A

Songs by Jane Powell (soprano). 4 sides, Columbia Set X-271, $2.25. Miss Powell sings these numbers in the MGM picture, "Holiday in Mexico"—Schubert's "Ave Maria" (with an unforgivable cut in the second verse), "Le Filles de Cadiz," "I Think of You," "Italian Street Song." Her voice is a bright, lyric soprano aided by good style. Her diction is not clear but that may be due, in part, to excessive surface noise and thin recording. P.S.: MGM will soon enter the record business.
Interpretation A
Fidelity of Recording B

Songs of Cole Porter. Rise Stevens (mezzo-soprano). 6 sides, Columbia Set 630. $3.85. Miss Stevens would do better, I think, to stick to Carmen and the classics, and leave crooning and Cole Porter to those who do it far better. Next time, too, there should be an arranger, orchestra and conductor who will give better support. The recording is technically OK except for the balance, which favors the voice. Included are "Night and Day," "Begin the Beguine," "What is this Thing," "I've Got you Under my Skin," etc.
Interpretation C
Fidelity of Recording A

Souvenirs. Enny de Vries (chanteuse). 6 sides, International Set 4. $3.75. Old favorites which take Miss de Vries from French to English, English to French. Included are "Darling," "Je vous aime beaucoup," "I Kiss Your Hand, Madame," "My Man," "Parlez moi D'Amour," etc.
Interpretation A
Fidelity of Recording A

Stella Brooks (vocalist). 6 sides, Disc Set 620. $3.15. (117 W. 46 Street, N.Y.C.) Love songs and blues in the nightclub manner, principally with improvised orchestral accompaniment. When heard at one sitting—monotonous, for Miss Brooks lacks diversity of style. Included are "St. Louis Blues," "Jazz Me Blues," "As Long as I Live," "West End," etc. Uneven recording.
Interpretation B
Fidelity of Recording B

The Voice of Frank Sinatra (crooner). 8 sides, Columbia Set C 112. $2.75. Eight numbers drooling with sentiment, sung *largo* by a familiar young man.
Interpretation C
Fidelity of Recording AA